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*The New international
year book*

THE NEW INTERNATIONAL YEAR BOOK



A COMPENDIUM OF THE WORLD'S
PROGRESS

FOR THE YEAR

1908

EDITOR

FRANK MOORE COLBY, M.A.

ASSOCIATE EDITOR

ALLEN LEON CHURCHILL

NEW YORK

DODD, MEAD AND COMPANY

1909

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PREFACE

The YEAR BOOK FOR 1908 is the second in the new series of annual volumes beginning with 1907. The old series ceased with the publication of the INTERNATIONAL YEAR BOOK for 1902, and as the series of *Appleton's Annuals* terminated at the same time, there remained no summaries of the year's history in this country save such as were afforded by newspaper almanacs or annuals on special subjects, necessarily of very limited scope. In response to constant demands for a comprehensive treatment of the year's events, the publication was resumed and the NEW INTERNATIONAL YEAR BOOK for 1907 was issued last year, comprising in addition to the record of the year, brief summaries of the events which had occurred in the interval.

The present volume differs materially in scope and plan from other annual summaries published in English. In the first place, it is designed as a cyclopædia of the year, including such subjects as have in the course of the year been marked by change or progress. It is a record not only of events and statistics but of current discussion. Its political articles recapitulate important debates as in the account of the PRESIDENTIAL CAMPAIGN; its articles on the sciences and arts present the pros and cons on disputed points. Over forty special contributors supply accounts of the year's changes in their respective fields; for example, Dr. A. C. True and Dr. E. W. Allen, of the U. S. Department of Agriculture, in AGRICULTURE and HORTICULTURE; Dr. Clark Wissler, of the American Museum of Natural History, in ANTHROPOLOGY; Professor O. S. Tonks, of Princeton University, in ARCHÆOLOGY; Professor T. W. Edmondson, of the New York University, in ASTRONOMY and METEOROLOGY; Professor M. A. Rosanoff, of Clark University, in CHEMISTRY; Dr. A. W. Ferris, President of the New York Commission in Lunacy, in MEDICINE; Professor Alfred Remy, in MUSIC; Professor A. D. F. Hamlin, of Columbia University, in ARCHITECTURE; Mr. M. N. Baker, of the *Engineering News*, in SANITARY ENGINEERING and MUNICIPAL GOVERNMENT; Professor A. L. Treadwell, of Vassar College, in ZOOLOGY; Professor Charles Knapp of Barnard College, and Dr. Louis H. Gray in PHILOLOGY; Mr. C. C. Adams in EXPLORATION and POLAR RESEARCH. In these and other departments assigned to members of the staff the subjects are arranged alphabetically under such titles as would naturally occur to the reader. Thus, ASTRONOMY, METEOROLOGY, ANTHROPOLOGY, ARCHÆOLOGY, PHILOLOGY, MUSIC, DRAMA, PAINTINGS, SCULPTURE, LITERATURE (ENGLISH AND AMERICAN), FRENCH LITERATURE, GERMAN LITERATURE, PSYCHOLOGY, CHEMISTRY, PHYSICS, GEOLOGY are discussed under these titles and not distributed among subordinate and less familiar headings. On the other hand, Medicine, Civil Engineering, Mechanical Engineering, Electrical Engineering, Manufactures, Economics, Social Science, Sports are treated under individual titles such as PLAGUE, INSANITY, CANCER, TUBERCULOSIS, BRIDGES, CANALS, DAMS, TUNNELS, CONCRETE, ELECTRIC LIGHTING, ELECTRIC RAILWAYS, IRON AND STEEL, BANKS AND BANKING, FINANCIAL REVIEW, CHILD LABOR, FOOTBALL, BASEBALL, etc.

In the second place the YEAR BOOK reduces to a minimum the class of information that can be found in any general work of reference, retaining only so much as is necessary for a brief explanation of the subject and thus gaining space for a more ample discussion of matters appropriate to the year. It is not a revision of a preceding volume, but a newly written work. The use of "standing matter" from year to year, including detailed descriptions of forms of government, long tables of retrospective statistics, and identical narratives of well known events, has seemed to the editors an unwarrantable waste of space and a serious detriment to an annual volume. That policy was not followed in the old series of Year Books and will not be followed in the new.

The need of a reference book framed on the present plan is perhaps too obvious to require explanation. It is a need supplied in other countries by annual volumes of similar character but narrower scope. In England, for example, the *British Annual Register* records political events and the *Statesman's Year Book* supplies statistics. Without such means of reference it is more difficult to secure information concerning recent events than concerning matters comparatively remote, for the immediate antecedents of current happenings are buried in the files of the periodicals. Readers of newspapers and writers on current topics need a reference book to the immediate past, a single and convenient source for a class of information that is widely scattered and difficult of access. Such a volume, if rightly prepared, will dovetail closely with current events. But though confident in the merits of the plan, the editors will, as was said in the preface to the 1907 volume, welcome any suggestion as to improvement in its execution.

The eventful year 1908 presented some difficult problems of selection. As the year of the Presidential elections it required unusually extended discussions under the UNITED STATES and PRESIDENTIAL CAMPAIGN. As the year following the panic the FINANCIAL REVIEW, and the articles on BANKS, CURRENCY, LOAN AND TRUST COMPANIES, RAILWAYS, and the various industries assumed especial importance. The prominence of Labor questions demanded the discussion at length of such topics as BOYCOTT, INJUNCTIONS, STRIKES AND LOCKOUTS, ARBITRATION, TRADE UNIONS. State politics and legislation were of unusual interest and required proportionate treatment in the paragraphs on Politics and Government in the articles on States. Noteworthy progress was made in many movements for reform, including such divergent

fields as CHILD LABOR, the DIRECT PRIMARY, INTERNATIONAL ARBITRATION, PROHIBITION, WOMAN'S SUFFRAGE, CONSERVATION OF NATIONAL RESOURCES, JUVENILE COURTS, JUVENILE DELINQUENTS, and PENOLOGY. The foreign record was equally crowded. Early in the year occurred the assassination of King CARLOS and the Crown Prince of PORTUGAL, and at its close ITALY was visited by the most disastrous of EARTHQUAKES; TURKEY after the successful struggle of the Young Turk party began her experiment with a constitution; PERSIA experienced a *coup d'état* and an insurrection and failed to restore her short-lived parliament; CHINA, by the Emperor's decree, secured the promise of a constitution; AUSTRIA-HUNGARY's annexation of Bosnia and Herzegovina, followed by BULGARIA's Declaration of Independence, brought the BALKAN QUESTION to a crisis, of which war seemed for a time the probable outcome; FRANCE had a war on her hands in Morocco and became involved with Germany in diplomatic disputes; RUSSIA at last found a Duma that it was not necessary to disperse and presented an interesting simulacrum of parliamentary government; GERMANY saw the defeat of the electoral reform movement in Prussia, the passage of the Polish Expropriation law and the Association law and the extraordinary discussion arising from the publication of the Kaiser's interview in an English newspaper; the Baltic and North Sea agreements guaranteed the status of the Scandinavian countries on those seas; GREAT BRITAIN had an interesting but unfruitful parliamentary history, remarkable for the heated discussion of measures that did not pass; CANADA had her general elections; BRITISH SOUTH AFRICA took the first formal step toward union in a convention of representatives from the component states at Durban; INDIA passed a turbulent year of bomb throwing, anarchistic plots and sedition in the press.

In pure and applied science the advances made during the year have been no less striking than in politics. In AERONAUTICS the successful tests of the Wright Brothers' aeroplanes in the United States and France indicated the solution of the problem of aerial navigation with machines heavier than air. In preventive medicine, study of the PLAGUE, especially as it has affected certain parts of the United States where it has threatened to gain a foothold, is a work of importance. FIRE PROTECTION for great cities was being secured by the provision of high pressure water supply systems, while in SHIPBUILDING the combination of the STEAM TURBINE and the reciprocating engine was making for increased economy. In PHYSICS progress was made with the elaboration of modern theories of matter and electricity, aided by recent researches with radio-active substances. The scientific study of EARTHQUAKES was made doubly interesting by the disaster in Italy and Sicily, while in ASTRONOMY, Professor Hale's striking researches on the nature of the sun spots made at the Mount Wilson Observatory of the Carnegie Institution have widely increased this field of knowledge for the astronomer and physicist. In the EMMANUEL MOVEMENT, religion, medicine and psychology have united for the relief of human ills and this interesting form of psychotherapy is worthy of discussion in all its branches. In MINERALOGY much was accomplished during the year and the discovery of an American DIAMOND field in Arkansas was matched in interest by the cutting of the Cullinan diamond, the world's most valuable stone. In NAVAL PROGRESS the attention of the world has been directed to BATTLESHIPS and the *Dreadnought* became during the year a measure of value in estimating the strength of the existing and proposed navies for the great powers. MILITARY PROGRESS involved partial re-armaments and the development of new forms of manœuvres. In ARCHITECTURE progress in design was accompanied by such forms of practical construction as the skyscraper, rising to new heights, and this in turn was only made possible by the improved and more efficient forms of ELEVATORS. Activity in scientific AGRICULTURE so benefited the condition of the farmer that, despite a year of general depression, agricultural industries were maintained in fairly good condition, while the scientific campaign in HORTICULTURE, STOCK RAISING, VETERINARY SCIENCE was pushed forward unceasingly. The year in ZOOLOGY was marked by the Darwin Centenary and by much scientific progress. Economic ENTOMOLOGY and the part played by INSECTS IN THE PROPAGATION OF DISEASE came in for no less attention in 1908 than in previous years.

The statistical articles are derived from official sources. In the preparation of these and other articles dealing with public affairs, especially in the United States and Canada, invaluable aid has been given by government officials. Especial recognition is due Major Frank McIntyre, Acting Chief of the Bureau of Insular Affairs, for information in regard to the Philippines and other possessions of the United States; to Mr. O. P. Austin, Chief of the Bureau of Statistics, Department of Commerce and Labor, and Mr. Victor Olmstead, Statistician of the Department of Agriculture; various officials in the Departments of War, Navy, and the Interior; the Superintendents of Education, Commissioners of Charities and Corrections, Treasurers, and Commissioners of Labor and Statistics in the several States; the officers of colleges, societies and religious bodies; and to the editors of leading newspapers in the States who have coöperated in the preparation of the paragraphs on State politics and history.

FRANK MOORE COLBY.

EDITOR

FRANK MOORE COLBY, M. A.

ASSOCIATE EDITOR

ALLEN LEON CHURCHILL

LIST OF CONTRIBUTORS

AGRICULTURE, HORTICULTURE, FOODS, IRRIGATION, BOTANY, FORESTRY, ETC.

ALFRED CHARLES TRUE, Ph. D.,
UNITED STATES DEPARTMENT OF AGRICULTURE,
AND
EDWIN WEST ALLEN, Ph. D.,
UNITED STATES DEPARTMENT OF AGRICULTURE;
ASSISTED BY EXPERTS IN THE DEPARTMENT OF
AGRICULTURE AT WASHINGTON.

ANTHROPOLOGY AND ETHNOLOGY

CLARK WISSLER, Ph. D.,
AMERICAN MUSEUM OF NATURAL HISTORY.

ARCHITECTURE

A. D. F. HAMLIN, M. A.,
PROFESSOR OF THE HISTORY OF ARCHITECTURE,
AND EXECUTIVE HEAD, SCHOOL OF ARCHITEC-
TURE, COLUMBIA UNIVERSITY.

ARCHÆOLOGY

OLIVER SAMUEL TONKS, Ph. D.,
PRECEPTOR IN ART AND ARCHÆOLOGY, PRINCE-
TON UNIVERSITY.

ASTRONOMY AND METEOROLOGY

T. W. EDMONDSON, Ph. D.,
PROFESSOR OF MATHEMATICS, NEW YORK UNI-
VERSITY.

BIOGRAPHY

GEORGE GLADDEN.

CANADIAN HISTORY

JOHN WILLIAM RUSSELL, M. A.

CHEMISTRY

MARTIN A. ROSANOFF,
ASSISTANT PROFESSOR OF CHEMISTRY AND
DIRECTOR OF CHEMICAL LABORATORIES IN CLARK
UNIVERSITY, AND
B. S. MERIGOLD,
INSTRUCTOR IN CHEMISTRY IN CLARK UNIVER-
SITY, ASSISTANT PROFESSOR IN CLARK COLLEGE.

CHEMISTRY, INDUSTRIAL; AND EXPO- SITIONS

MARCUS BENJAMIN, Ph. D.,
EDITOR OF THE UNITED STATES NATIONAL
MUSEUM.

CIVIL ENGINEERING

CHARLES E. MORRISON, C. E., Ph. D.,
DEPARTMENT OF CIVIL ENGINEERING, COLUMBIA
UNIVERSITY.

DRAMA, PAINTING AND SCULPTURE

PHILIP G. HUBERT, JR.,
FORMERLY ART WRITER FOR THE NEW YORK
"EVENING POST"; NOW OF THE DRAMATIC AND
MUSICAL DEPARTMENT OF THE NEW YORK
"HERALD."

EDUCATION

CLYDE FURST, M. A.,
SECRETARY TEACHERS' COLLEGE, COLUMBIA UNI-
VERSITY.

ECONOMICS AND POLITICAL SCIENCE

FRANK HAMILTON HANKINS, Ph. D.,
ASSISTANT PROFESSOR IN ECONOMICS, CLARK
COLLEGE.

ELECTRICAL ENGINEERING

HAROLD PENDER, Ph. D.,
ELECTRICAL ENGINEER, NEW YORK CITY.

EMMANUEL MOVEMENT

W. A. PUBBINGTON, LL. M.,
LECTURER ON THE RELATION OF LAW TO MEDI-
CAL PRACTICE IN THE UNIVERSITY AND BELLE-
VUE HOSPITAL MEDICAL COLLEGE AND CON-
TRIBUTOR TO MEDICAL AND LEGAL PERIODICALS.

EXPLORATION AND POLAR RESEARCH.

CYRUS C. ADAMS,
MEMBER OF THE STAFF OF THE AMERICAN GEO-
GRAPHICAL SOCIETY. GEOGRAPHICAL WRITER
FOR THE NEW YORK "SUN."

FOREIGN GAZETTEER

HERMAN SIMPSON.

GEOLOGY

DAVID HALE NEWLAND,
ASSISTANT STATE GEOLOGIST, NEW YORK.

INTERNATIONAL ARBITRATION

CLINTON ROGERS WOODRUFF, Ph. B.,
SECRETARY OF THE NATIONAL MUNICIPAL
LEAGUE AND OF THE MOHONK CONFERENCE AND
PRESIDENT OF THE BOARD OF PERSONAL REGIS-
TRATION PHILADELPHIA.

LITERATURE, AMERICAN AND ENGLISH

EDWIN E. SLOSSON, Ph. D.,
LITERARY EDITOR, "THE INDEPENDENT."

LITERATURE, FRENCH

ALBERT SCHINZ, Ph. D.,
PROFESSOR OF FRENCH LITERATURE, BRYN MAWR
COLLEGE.

LITERATURE, GERMAN

AMELIA VON ENDE,
AMERICAN CORRESPONDENT FOR THE "LITER-
ARISCHES ECHO."

MANUFACTURES, TECHNOLOGY, AËRO- NAUTICS AND FIRE PROTECTION

HERBERT TREADWELL WADE.

MEDICINE

ALBERT WARREN FERRIS, A.M., M.D.,
PRESIDENT NEW YORK STATE COMMISSION IN
LUNACY; FORMER ASSISTANT IN NEUROLOGY,
COLUMBIA UNIVERSITY; ASSISTANT IN MEDI-
CINE, NEW YORK UNIVERSITY AND BELLEVUE
HOSPITAL MEDICAL COLLEGE, ASSISTED BY
DAVID G. YATES, M.D.,
SURGEON NEW YORK CHILDREN'S HOSPITAL AND
DEMILT DISPENSARY.

MILITARY PROGRESS

JAMES A. SHIPTON,
CAPTAIN IN THE ARTILLERY CORPS, UNITED
STATES ARMY.

MUSIC

ALFRED REMY, M. A.
PROFESSOR OF HARMONY AND COUNTERPOINT,
INTERNATIONAL CONSERVATORY OF MUSIC, NEW
YORK.

NAVAL NOTES AND BATTLESHIPS

LIEUTENANT-COMMANDER H. F. BRYAN, UNITED
STATES NAVY.

PHILOLOGY

LOUIS H. GRAY, Ph. D.,
ASSOCIATE EDITOR OF THE "ORIENTALISCHE
BIBLIOGRAPHIE," AND
CHARLES KNAPP, Ph. D.,
PROFESSOR OF CLASSICAL PHILOLOGY, BARNARD
COLLEGE, COLUMBIA UNIVERSITY.

PHILOSOPHY

FRANK THILLY, A. M., Ph. D., LL. D.,
PROFESSOR OF PHILOSOPHY, SAGE SCHOOL OF
PHILOSOPHY, CORNELL UNIVERSITY.

PHYSICS

GEORGE B. PEGRAM, Ph. D.,
INSTRUCTOR IN PHYSICS, COLUMBIA UNIVERSITY.

PSYCHOLOGY AND PSYCHICAL RESEARCH

I. MADISON BENTLEY, B. S., Ph.D.,
ASSISTANT PROFESSOR OF PSYCHOLOGY IN COR-
NELL UNIVERSITY.

RAILWAYS

RODNEY HITT, B. S., M. E.,
ASSOCIATE EDITOR "STREET RAILWAY JOURNAL,"
ASSOCIATE MEMBER MASTER CAR BUILDERS'
ASSOCIATION.

SANITARY ENGINEERING AND MUNICI- PAL ACTIVITIES

MOSES NELSON BAKER, C. E.,
ASSOCIATE EDITOR OF THE "ENGINEERING
NEWS."

SPORTS

CHARLES A. TAYLOR.

ZOOLOGY

AARON L. TREADWELL, Ph. D.,
PROFESSOR OF BIOLOGY, VASSAR COLLEGE.

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THE NEW INTERNATIONAL YEAR BOOK

ABBOTT, EDWARD. An American clergyman and author, died on April 5, 1908. He was born in Farmington, Maine, on July 15, 1841, graduated at the University of the City of New York in 1860, and studied at Andover Theological Seminary. In 1863, after serving at Washington in the United States Sanitary Commission, he was ordained to the Congregational ministry. He was pastor of Pilgrim Church, Cambridge, Mass., from 1865 to 1869, when he became associate editor of the *Congregationalist*. He resigned this post in 1878 to accept the editorship of the *Literary World*, a position which he held until 1888. In 1879 he was ordained to the Protestant Episcopal priesthood, and accepted the rectorship of St. James Church, Cambridge, where he remained until his death. He wrote several books, chiefly religious and historical. Among these are: *Conversations of Jesus* (1875); *Paragraph History of the United States* (1875); *Paragraph History of the American Revolution* (1876); and *Phillips Brooks* (1900).

ABD-EL-AZIZ. See MOROCCO.

ABDUL HAMID II. SULTAN OF TURKEY. See TURKEY.

ABYSSINIA. An independent country in East Africa. Area, about 308,000 square miles; population, 8,000,000. Addis Abeba, the capital, has 30,000 inhabitants; Harrar, 40,000; Gondar, 5000; Aksum, 5000; Diré Dawa, founded in 1902, 4500. Several European houses have been erected at Addis Abeba with the aid of a German architect. The Empress has caused the erection of a modern hotel, which was inaugurated in the presence of the diplomatic representatives. Sericulture has been started. Cotton culture on a large scale has been introduced by Europeans with pronounced success. A saw-mill has been established at Addis Abeba. Greek artisans are engaged in quarrying and stone hewing. The imports are mainly cotton goods, largely American; woolens, silks, cutlery, matches, and mirrors; the exports are mainly civet, coffee, gum, wax, hides, gold, and ivory. In 1906 the imports through Eritrea amounted to 8,688,000 francs, and through French Somaliland, 13,977,000 francs; the exports through

Eritrea were valued at 5,748,000 francs, and through French Somaliland 8,875,000 francs (1 franc equals 19.3 cents), besides the trade through British Somaliland, British East Africa, and the Anglo-Egyptian Sudan. The principal trading centres are Harrar, Ankober, and Addis Abeba. At Harrar there are half a dozen large warehouses containing a great diversity of goods. The railway from Diré Dawa to Jibuti, in French Somaliland, is 193 miles long. In September, 1908, it was reported that the Government of Abyssinia approved the plans for the projected railway from Diré Dawa via Harrar, to Addis Abeba, and that a contract had been signed with a French company. The distance from Addis Abeba to Jibuti is 528 miles. The Bank of Abyssinia, established with a capital of £500,000 by the National Bank of Egypt, has the privilege of minting the Abyssinian coinage, issuing legal tender notes, and engaging in all industrial, commercial, and financial enterprises.

The government is feudal in character. Each of the large provinces is under a *Ras*, or feudal chief, under whom are the governors of districts and chiefs of villages. The more important of the *rasas* constitute the Council of State. The King in 1908 was Menelek II. A regular army of about 150,000 men which was supplemented by irregular and territorial forces was maintained. The entire army was supposed to be mounted, and was armed with Gras and magazine rifles. There were seven batteries of field guns and mitrailleuses. A convention with Italy was signed in May, defining the limits of Italian Somaliland. (See below.) In the latter part of 1907, Mount Afdera, within 200 miles of the Gulf of Aden, supposed to have become extinct ages ago, suddenly burst into tremendous volcanic activity, which was accompanied by violent shocks of earthquake. The vegetation of an area over 150 square miles in extent was blotted out. The herders living in the neighborhood of the mountain were compelled to flee, one tribe losing 200 members from fright and exhaustion. The survivors took refuge on the high plain of Biru and said they would never again live near the mountain.

HISTORY. The agreement of July 6, 1906, on the part of Great Britain, France, and Italy had guaranteed the *status quo* in Abyssinia and the

maintenance of the policy of the open door, and the three powers had further engaged mutually to protect their interests in the adjoining regions, Great Britain and Egypt in the Nile Basin, Italy in Benadir, Eritrea and Somaliland and France in the Somali Protectorate and hinterland, and the regions traversed by the projected railway from Addis Abeba to Jibuti. Early in January, 1908, it was reported that in the month of December the Abyssinians had raided certain regions in the Benadir hinterland, plundering villages and slaying the inhabitants. The natives applied to the Italian Resident at Lugh for aid, and some fighting followed between the Italians and the friendly natives on the one hand and the raiders on the other, resulting in considerable losses and the killing of two Italian officers. Italy at once protested at Addis Abeba against the violation of her territory. In response to the Italian demands Menelek gave assurances of his friendliness and ordered the raiders to withdraw. In March it was learned that the chiefs involved in the raid had been condemned to imprisonment, and that Menelek had promised to appoint new chiefs on the Benadir border. On May 16, Menelek and the Italian Representative at Addis Abeba signed a convention fixing the boundaries between Italian Somaliland and Abyssinia; and Italy, in return for the payment of \$600,000, was guaranteed the possession of Lugh and of the caravan centre at the meeting of the Dau and Ganana rivers. (See ERITREA and ITALIAN SOMALILAND.) In June Menelek appointed as his successor to Lidj Eyassu, a son of Ras Michael and the King's daughter; he was born in 1896. In August, 1908, it was reported that the policy of forming a cabinet on the European model, which King Menelek had announced in October, 1907, had been carried into effect, a more efficient and suitable system being substituted for the half patriarchal court. In 1908 Abyssinia became a member of the Postal Union. The Ethiopian Railway Company, which is engaged in the construction of the railroad from Jibuti to Addis Abeba, and which, after carrying the line from the coast to Diré Dawa, had been brought to a standstill by financial difficulties, entered upon a new reorganization late in 1908, involving substantial aid by the French government.

ACADÉMIE FRANÇAISE, founded by Cardinal Richelieu in 1635 and reorganized in 1810, is the first in order and the most eminent of the five academies which constitute the Institute of France. It is the chief tribunal in all questions relating to the niceties of the French language, and to grammar, rhetoric, poetry, and the publication of the French classics. The membership is limited to forty, known as the "Forty Immortals," who are elected for life. The members receive an annual stipend of 1500 francs and, in addition, the six members of the dictionary committee receive each 1000 francs annually. The Académie annually distributes 12,000 francs in prizes alternately for poetry and eloquence, besides a number of smaller prizes. Three new members were elected in 1908. Jules Henri Poincaré succeeded Prudhomme, Jean Richepin succeeded Theuriet, and Frances Charmes succeeded Berthelot. The chairs left vacant at the deaths of Boissier, Sardou, Coppée, Halévy, Mathieu, and Prévost had not been filled up to the end of the year. The present academicians and dates of their elections

are: Emile Ollivier, 1870; Alfred Jean François Mézières, 1874; Othénin P. de Cléron Comte d'Haussonville, 1886; Jules Arnaud Arsène Claretie, 1888; Eugène Marie Melchior Vicomte de Vogué, 1888; Charles Louis de Saules de Freycinet, 1890; Louis Marie Julien Viaud (Pierre Loti), 1891; Ernest Lavisse, 1892; Paul Louis Thureau-Dangin, 1893; Paul Bourget, 1894; Henri Houssaye, 1894; Jules Lemaitre, 1895; Jacques Anatole Thibault (Anatole France), 1896; Marquis Marie C. A. Costa de Beauregard, 1896; Louis Jules Albert Comte Vandal, 1896; Albert Comte de Mun, 1897; Gabriel Hanotaux, 1897; Henri Léon Emile Lavedan, 1899; Paul Deschanel, 1899; Paul Hervieu, 1900; Auguste Emile Faguet, 1900; Charles Jean Melchior, Marquis de Vogué, 1901; Edmond Rostand, 1901; Frédéric Masson, 1903; René Bazin, 1903; Etienne Lamy, 1905; Alexandre Felix Joseph Ribot, 1906; Maurice Barrès, 1906; Marquis de Ségur, 1907; Maurice Donnay, 1907; Maître André Barboux, 1907; Jules Henri Poincaré, 1908; Jean Richepin, 1908; Frances Charmes, 1908.

ACADEMY, BRITISH. See **BRITISH ACADEMY.**

ACTINOTHERAPY. See **PHOTOTHERAPY.**

ADEN. A peninsula and town near the southwest corner of Arabia, a British colony. Area, 75 square miles; population in 1901, 41,222 (28,180 males and 13,042 females). Attached to Aden are the island of Perim, at the entrance to the Red Sea, 5 square miles and 2752 inhabitants in 1901; the island of Sokotra, off the coast of Africa, 1382 square miles and about 12,000 inhabitants; the five Kuria Muria Islands off the south coast of Arabia, ceded by the Sultan of Oman for the purpose of landing the Red Sea cable; and the Aden Protectorate, comprising about 9000 square miles of the Arabian hinterland, with a population of about 100,000. The importance of Aden lies solely in its position. It is an important coaling-station on the Suez route, and is strongly fortified. The trade is almost entirely transit. The chief imports are cotton goods, grain and flour, petroleum, hides and skins, and tobacco. The chief exports and coffee, gums, civet, ivory, wax, and the articles mentioned under imports. In 1907 8 the sea-borne imports amounted to Rs. 44,669,050 (Rs. 5,335,892 in treasure), and the sea-borne exports, Rs. 40,471,126 (Rs. 5,267,703 in treasure). (1 rupee = 32.44 cents.) American cotton goods and kerosene oil are largely imported. The imports from the interior of Arabia by land in 1907-8 amounted to Rs. 2,475,007 of merchandise and Rs. 123,387 of treasure; the exports to the interior were Rs. 1,497,086 of merchandise and Rs. 155,406 of treasure. The Protectorate and its dependencies are attached to British India, forming a part of the Bombay Presidency. The administration is in the hands of a Political Resident—in 1908, Major-General E. De Brath.

ADLER, FRIEDRICH. A German architect and writer on architectural subjects, died in Berlin on September 15, 1908. He was born in Berlin, on October 15, 1827, and studied architecture, at the Berlin Academy, under Strack. He was appointed professor there in 1863, and in 1877 was made consulting architect to the Prussian Ministry of Public Works. He was an authority on ancient and mediæval archi-

ture, and was actively interested in the excavations at Olympia. Among his publications are: *A History of the Architecture of Berlin* (1861); *The Architecture of Some of the World's Historic Cities* (1872); and *Architectural Investigations in Germany* (1870-79).

ADULTERATION. See FOOD AND NUTRITION.

ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION OF. A learned society, chartered in 1874, being a continuation of the American Association of Geologists and Naturalists, organized in 1840. The membership is about 6,000. The Association is made up of eleven sections as follows: Mathematics and Astronomy, Physics, Chemistry, Mechanical Science and Engineering, Geology and Geography, Zoology, Botany, Anthropology and Psychology, Social and Economical Science, Physiology and Experimental Medicine, and Education. The annual meeting of the Association is held each year in a different city. The meeting of 1908 was held in Baltimore on December 28. It was the largest meeting of the society yet held, and surpassed in size and importance any gathering of scientific men ever seen in this country or probably elsewhere. The attendance at the meeting is estimated to have been in excess of 2500. Over 300 papers were read in all the sections. Many public lectures of interest were delivered. Among them were the following: "Mimicry in the Butterflies of North America," by Professor Poulton of Oxford; "Man, Climate and Soil," by Professor Penck of Berlin; "The Problem of Beauty," by Professor Münsterberg of Harvard; "A Visit to Mt. Kilauea," by Mr. Bryan of Honolulu; "Recent Progress in Aeronautics," by Major Squier of the United States Army; "Earthquake Forecast," by Mr. G. K. Gilbert of the United States Geological Survey. There were on the programme published by the Association the titles of more than 1000 papers to be read at the meeting, of which the great majority represented research work of the highest order. While the papers were, in the main, special and technical in character, there were in each science papers containing results of interest to a wide group of scientific men and in many cases to the public. Among the most notable was a series of addresses before the American Chemical Society, and a symposium on correlation in which sixteen leading geologists took part. There were general discussions arranged also by the botanists, and symposia on college education and life, on physical instruction in schools and colleges, and on public health. The most notable feature of the meeting was the celebration of the Darwin Centenary in which Professor E. B. Poulton came from England to take part. Among the most notable addresses delivered was that of the retired chairman of the section on Chemistry, Henry P. Talbot of the Massachusetts Institute of Technology, on "Science Teaching as a Career." A notable address was delivered on recent researches on the "Determination and Heredity of Sex," by Professor Edmund B. Wilson of Columbia University, vice-president, and chairman of the section on Geology. The next meeting of the Association will be held in Boston, under the presidency of Dr. David Starr Jordan, President of Leland Stanford Jr. University. The vice-presidents for the sections are as follows: Mathematics and Astronomy, Professor Ernest W. Brown of Yale University; Physics, Dr. L. A. Bauer,

Carnegie Institution, Washington, D. C.; Chemistry, Professor Wm. McPherson, Ohio State University; Mechanical Science and Engineering, Dr. J. F. Hayford, U. S. Coast and Geodetic Survey; Geology and Geography, Dr. R. W. Brock, Director of the Canadian Geological Survey; Zoology, Professor William E. Ritter, University of California; Botany, Professor D. T. Penhallow, McGill University; Anthropology and Psychology, Dr. William H. Holmes, Bureau of American Ethnology; Social and Economic Science, President Carroll D. Wright, Clark College; Physiology and Experimental Medicine, Professor Charles S. Minot, Harvard Medical School; Education, Professor J. E. Russell, Dean of Teachers College, Columbia University; Anthropology, Professor George Green McCurdy, Yale University (Secretary). The General Secretary is Professor Dayton C. Miller, of the Case School of Applied Science.

ADVENTISTS. Several bodies of Adventists have practically nothing in common with the Seventh Day Adventists, except possibly the doctrine of the second coming of Christ, and the connection even there is very remote. These bodies are the Evangelical or Advent Christians, the Church of God, the Liberal Advent Union, and Churches of God in Jesus Christ. Next to the Seventh Day Adventists the Advent Christians are the most numerous. They number about 35,000 communicants, 53 conferences, 755 churches, 716 ordained and 167 licensed ministers, and 351 Sunday schools, with an enrollment of 16,545 scholars. The next conference will be held at Mendota, Illinois, in 1909. This denomination publishes four papers: *The World's Crisis*; *Our Hope*; *Present Truth*; and *Messiah's Advocate*. Other branches of the Adventists number about 7,000.

ADVENTISTS, SEVENTH DAY. A religious denomination which was founded originally on the doctrine of the second coming of Christ, which was quite extensively believed in the United States and Europe during the years 1840-44. After the passing of the time set for this in 1844, many of the believers gave up the doctrine, while others, on reviewing the historical prophetic evidences, saw that the mistake was in believing that the "sanctuary to be cleansed was not this earth, but rather that it was the sanctuary in Heaven." Thus, there arose in New England in 1846 a small body who, while believing in the second coming of Christ, have never set a time for that event, but hold to the Scripture statement that it is "near, even at the door," and also observe the seventh day of the week as the Sabbath. At the close of 1908 the Seventh Day Adventist denomination, whose headquarters are at Washington, D. C., had 21 union conferences, 98 local conferences, 127 foreign mission stations, 33 being in non-Christian lands, and over 2600 churches in eighty of the principal countries of the world, with about 100,000 communicants. For the spread of the evangelistic work there was contributed by the denomination during 1908, approximately \$2,000,000. In institutional lines the work is represented by 31 colleges and academies, and about 500 primary and intermediate schools. There are 25 denominational publishing houses, which print 115 papers. The denomination also operates over seventy sanitariums with which there are connected over 1500 physicians and trained employees. The next

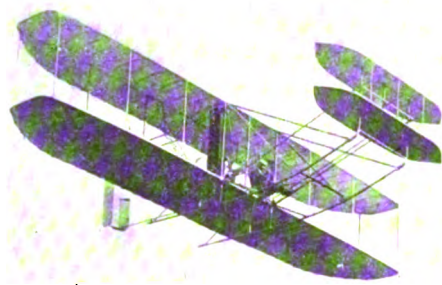
general conference of the denomination meets at Washington in May, 1909.

AERONAUTICS. The most important aspect of the progress of aerial navigation during the year 1908 was the demonstrated triumph of the aeroplane. Just as the dirigible balloon had been shown in previous years to be a practical possibility and needing only development and improvement at the hands of military men and others working at its construction and actual use, so during 1908 the ability of the aeroplane to maintain sustained flight at high speed and to be controlled by its operator was proved. But it must not be understood that either the aeroplane or the dirigible balloon was to be considered a realized achievement for every day use; merely that both had passed from the experimental into the practical stage. Particularly was this the case with the Wright brothers' aeroplane, which after more than five years of experiment and development, carried on, too, with such secrecy as to provoke much scepticism especially in Europe, was shown to the world to be a practical heavier-than-air machine capable of carrying passengers, and in large measure solving the problem of artificial flight. Such work as this, as well as the inventions of others, by no means to be despised, naturally increased not only general interest in aeronautics but that of various governments alive to the military possibilities of the navigation of the air. As a result in 1908 more than ever the practical test of airships and aeroplanes was being carried on in a practical and effective manner. The interest was keenest in France, where not only the Government but private associations and individuals stood ready to encourage all forms of aeronautics and the most important trials were made of new inventions. Thus there were various competitions for substantial prizes where the conditions previously announced were believed to be such as to put before the different inventors a reasonably high standard, and several mechanics of experience and reputation devoted themselves to the commercial construction and development of apparatus for aerial navigation and flight.

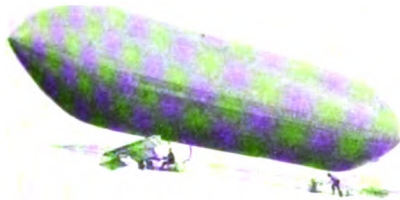
AVIATION. The usual and logical division of devices for aerial navigation into those for aviation, or heavier-than-air machines intended for artificial flight, and those for aerostation of lighter-than-air apparatus, such as balloons, will be observed here, and inasmuch as the greatest progress in the year 1908 was witnessed among the aeroplanes which manifestly are included in the first class it is desirable to consider the striking developments witnessed in this field. First and foremost were the successful tests and demonstrations of the Wright brothers' aeroplane at Fort Myer, Va., and at Le Mans, France. At the former place Orville Wright submitted to the United States Army Signal Corps for trial in September an aeroplane built to meet the Government specifications and requirements as announced December 23, 1907, where it was demanded that a heavier-than-air machine be submitted for test in trial flights, capable of carrying one passenger beside the aviator and fuel for 125 miles, and also able to remain in the air without landing for one hour, as well as make a minimum speed of 36 miles an hour against and with the wind over a measured course of more than five miles. The Wright aeroplane submitted for these and other tests by Orville Wright, had

two superposed main surfaces aggregating about 500 square feet, the two planes having a spread of 40 feet and being $6\frac{1}{2}$ feet from front to rear, while they were spaced 6 feet apart. The horizontal rudder, also formed by two superposed planes about 15 feet long and 3 feet wide, was in front of the main surfaces, while the vertical rudder consisting of two surfaces trussed together and about $5\frac{1}{2}$ feet long and 1 foot wide was behind the main planes. A 4-cylinder water-cooled motor developing about 25 horsepower at 1400 revolutions per minute drove two wooden propellers $8\frac{1}{2}$ feet in diameter and working at about 400 revolutions per minute. The entire machine weighed about 800 pounds and was supported on two runners. In starting, it rose from a monorail track. Repeated preliminary tests to accustom the aviator to the manipulation of the machine met with success, and various flights were made, in some of which an estimated maximum speed of 40 miles per hour was made. The length of flight was also increased, and on September 12 a record flight of 1 hour 14 minutes and 20 seconds was made. On each successive occasion better control of the aeroplane was secured, often a passenger was carried and it seemed to be manoeuvred at the will of the aviator. Everything apparently was in readiness for meeting the Government specifications, which at the time of their promulgation, it may be said, were criticised as unduly rigorous and not justified by the state of the art, when during a flight on September 17 one of the propeller blades was broken accidentally and the aeroplane was thrown to the ground and destroyed. The accident involved the death of Lieut. T. E. Selfridge, U. S. A., who was accompanying Mr. Wright as passenger, and the serious injury of the latter. This misfortune temporarily put an end to these trials, as Mr. Wright recovered from his injuries only towards the end of the year.

In France no such accident attended Wilbur Wright's demonstrations, and his brilliant work was acclaimed by European authorities as the successful solution of the problem of mechanical flight. Progressively, he was able to demonstrate his complete control of his machine, his ability to remain in the air as long as he desired, and to carry a passenger aloft in addition to the aviator. Both Wright's aeroplane and his skill in its manipulation and complete knowledge of the conditions involved in its use immediately were appreciated as in advance of the best French work, and this was made the more apparent as time in flight, speed and distance were gradually increased. On September 21, Mr. Wright made a continuous flight of 1 hour and 31 minutes, and in a trial for the Michelin prize of \$4000 and a trophy valued at \$2500, was in the air continuously for 1 hour 53 minutes and 59 seconds, covering a distance of $61\frac{1}{2}$ miles at a speed of 36 miles an hour. The success of the Wright aeroplane, and particularly the fulfilment of specified conditions in a trial on October 10, enabled the brothers to dispose of the French patent rights for \$100,000 to a syndicate headed by M. Lazare-Weiler. This syndicate ordered the construction of 50 Wright aeroplanes and by the end of the year the training of aviators in their use and preparation for their manufacture were under way. The Michelin cup for the greatest distance travelled by an aeroplane before the end of the year 1908



WRIGHT AEROPLANE IN FLIGHT AT FORT MYER



Photographs by courtesy of the Chief Signal Officer

SIGNAL CORPS DIRIGIBLE BALLOON, NO. 1, MANOEUVERING OVER FORT MYER

AERONAUTICAL WORK OF THE SIGNAL CORPS, U. S. ARMY, 1908

around a triangular course marked by flags at measured distances was virtually won on December 18, by Wilbur Wright in a flight of over 90 miles, but this record was broken on December 31, when ascending from Le Mans Mr. Wright made a flight lasting 2 hours and 18 minutes 33 seconds, covering a distance officially stated at 123 kilometers 200 meters (76.6 miles), but which on account of wide corners amounted to over 150 kilometers (93.2 miles). Mr. Wright also made an aeroplane record for height when on Dec. 18 he won the Aero Club de la Sarthe 100 meter (328 feet) height prize by soaring in a 9 minute flight to a distance estimated at 360 feet over a line carried by captive balloons without covering more than 800 meters (2625 feet) over the ground.

Second to the work of the Wrights was that of Henri Farman of France whose aeroplanes figured in numerous important experiments and competitions. In fact, during 1907 Farman really made the best public performances and with his aeroplane made flights up to one kilometer (.62 miles) in length. On January 13, 1908 he won the Deutsch-Archdeacon prize for the first heavier-than-air machine flying a kilometer, and by March 20, was able to accomplish a flight of 2734 yards. On July 6, he flew for 20 minutes and won the Armengaud prize of 10,000 francs over M. Bleriot by remaining in the air 20 minutes and 20 seconds, the prize being given for the first aeroplane to remain in the air over 15 minutes. After these demonstrations in France and a few flights for exhibition purposes in the United States marked by limited success, Farman made a sensational cross country flight from Chalons to Rheims, a distance of 26 miles, in 43 minutes. Previously he had accomplished a flight of 44 minutes 32 seconds in competition for the Michelin prize.

The Farman aeroplane like that of Delagrangé and other French aviators was built by MM. Voisin who developed a large shop for this kind of work and greatly advanced the mechanical features of a number of aeroplanes for which they were responsible. The type of aeroplane used by Farman was provided with a tail and a number of vertical surfaces to afford stability in flight and to aid in the control of the machine. The supporting surface, arranged in two planes as in the Wright machine, amounted to 535 square feet and the propelling motor driving a single screw consists of an 8-cylinder engine giving 49 brake horsepower at 1100 revolutions per minute. The machine also had a four wheel chassis in place of the light runners of the Wright aeroplane. At the end of the year Farman had made a number of changes in his aeroplane including the addition of a third plane directly above the upper of the two main planes in order to increase its lifting power. Mention may be made of Delagrangé's aeroplane somewhat resembling that of Farman which starting on March 30, 1907 with a flight of 650 feet was the first demonstrated bi-plane in Europe. Then in 1908 after a flight of nearly four kilometers he worked up to a record of 10 miles 1105 yards made at Milan on June 23, and on September 6, at Issy increased this to 15½ miles.

The next important aeroplane was that of Bleriot, known as a monoplane for its single supporting surface. With one of these the inventor made a notable flight from Toury to

Artenay and back, a distance of 17.38 miles with an average speed of 53.78 miles an hour. But the bi-plane seemed to be the more practical form and M. Bleriot who had experimented with both at the end of the year was working with the bi-plane as the more effective form. Another monoplane was that of Esnault-Pelterie which made some successful flights near Versailles, but was undergoing constant change and improvement. Mr. Cody of the balloon department of the British Army at Farnborough developed an aeroplane during the year which was tested during October and September, but was damaged during a flight on October 16. It was not believed to contain any particularly new or advantageous features.

In the United States, outside of the Wright brothers' work, the most important and successful aeroplane developed during the year was the "June Bug" built by the Aerial Experiment Association, with which Glenn H. Curtiss on July 4, for the first time won the *Scientific American* trophy. The distance recorded was a little over a mile in a straight line and a speed of almost 40 miles an hour was made. The aeroplane had two supporting planes aggregating some 390 square feet and a tail somewhat similar to that of the Farman aeroplane. It was driven by a 25 horsepower air-cooled motor and weighed with the aviator 650 pounds. With the experience of this machine the association developed its fourth aeroplane, the "Silver Dart," a heavier machine where a 40 horsepower water-cooled engine was used and the tail omitted. On December 17 this new aeroplane flew over a mile making a speed of about 40 miles an hour. In the bids for an aeroplane submitted to the Signal Corps in addition to the Wright machine there was one by A. M. Herring which was very compact and small. Although a technical delivery was made to the Government, there was during the year no test of it nor were its details made public. The most striking steps in the development of aviation and the aeroplane are shown in the accompanying table from the *Daily Mail* of London, which paper by the way, on October 5, offered a prize of \$2500 for the first 'cross the Channel aeroplane flight.

In December Mr. James Gordon Bennett presented the Aero Club of France with an international aviation prize consisting of a cup valued at \$2500 for annual competition, and three cash prizes of \$5000 each to be given to the winners in the three first annual competitions. The first competition was to be held in France and the rules were to be changed annually.

HELICOPTERS. Other devices than aeroplanes were attracting the attention of inventors and experimenters in 1908, and while no especially notable results were achieved, yet some mention should be made of the various machines. In France Paul Cornu in a helicopter, that is a machine with lifting propellers, rose one foot from the ground on March 25, 1908, and was still further developing his machine. On July 25, 1908 Breguet in his gyroplane, in which was combined an aeroplane and helicopter rose 13 feet and flew 20 meters (65.6 feet). Helicopters have also aroused interest in the United States, and Luyties, Kimball and Berliner, all had machines or large models under test during the year.

Progress in Five Years in Motor Driven Heavier-than-air Machines for Mechanical Flight.

From The London Daily Mail

Date	Name	Place	Distance M. Yds.	Time M. S.
1905				
Sept. 28	Wright Bros.	Dayton	11 125	18 8
Sept. 29	Wright Bros.	Dayton	12 —	19 35
Oct. 3	Wright Bros.	Dayton	15 25	25 5
Oct. 4	Wright Bros.	Dayton	20 75	33 17
Oct. 5	Wright Bros.	Dayton	24 20	30 13
1906				
Nov. 11	Santos Dumont	Paris	— 230	21 18
1907				
Oct. 8	Wels	Trautenuau	— 350 ft.	—
Nov. 7	Farman	Paris	1300	—
1908				
March 22	Farman	Paris	2 1540	—
May 14	Wright Bros.	Manteo, N.C.	6 —	9 —
June 23	Delagrangé	Milan	10 1105	18 30
July 6	Farman	Paris	11 —	20 10
Sept. 5	Delagrangé	Issy	15½ —	30 —
Sept. 5	W. Wright	Le Mans	16¼ —	19 50
Sept. 9	O. Wright	Fort Myer	51 1-3	56 —
Sept. 9	O. Wright	Fort Myer	37½ —	62 13
Sept. 10	O. Wright	Fort Myer	— —	65 42
Sept. 11	O. Wright	Fort Myer	— —	70 30
Sept. 12	O. Wright	Fort Myer	45 —	74 20
Sept. 21	W. Wright	Le Mans	68 —	91 25
Sept. 30	H. Farman	Mourmelon-le-Grand	24 —	36 —
Oct. 6	W. Wright	Le Mans (with passenger)	42 —	64 26
Dec. 18	W. Wright	Le Mans	95 —	113 59
Dec. 31	W. Wright	Le Mans	76¼ —	129 33

AEROSTATION. The progress made with balloons in 1908 was steady and general rather than sensational, and was largely at the hands of the balloon corps of the various armies, although ballooning as a sport was making considerable headway and there were doubtless more balloons constructed and in use than ever before. The most notable performance perhaps was the long distance trip of the "Zeppelin IV" which is mentioned below where the most significant work in the various countries is outlined.

In France "La République," having a balloon of 3700 cubic meters and driven by a 65 horsepower motor, was built from designs by M. Juillot, and while it involved improvements it was in many respects similar to the ill-fated "La Patrie," carried away and destroyed in November, 1907. The "La République" which was completed and successfully tested in 1908 was somewhat shorter, being about 200 feet in length with a maximum diameter of 35½ feet and a total lifting capacity of 9000 pounds, of which 2700 pounds was available for passengers, fuel, ballast and instruments. This airship made a 125-mile flight in 6½ hours against an unfavorable wind. The "Ville de Paris," built by M. Deutsch and by him presented to the French Government in 1907, and the old Lebaudy airship were in constant use by the French Army. In August, 1908, the French Government established an aerostatic park at Beauval, near Mieux.

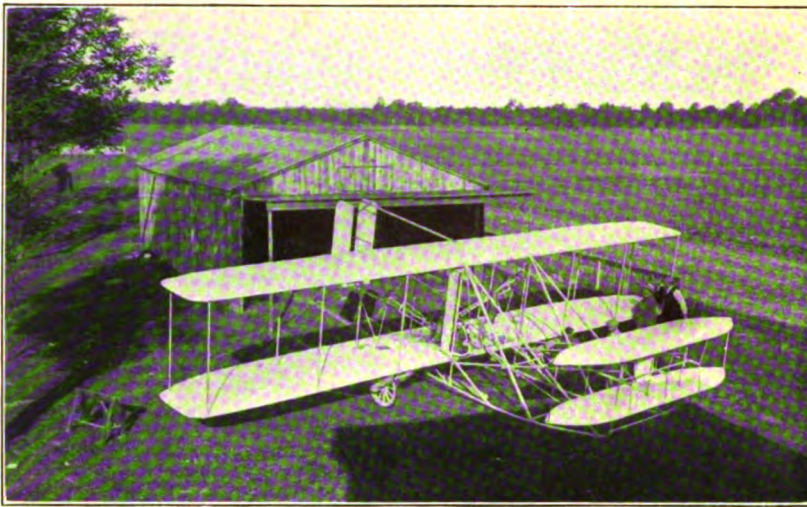
The most important work in Germany was in connection with the military airships in the form of dirigible balloons. The airships of Parseval and Zeppelin had been studied with care by the members of the ballooning corps, whose commander Major Gross designed a new airship in which the best features of both were combined. This was given some successful tests, and on September 11 it travelled from Tegel to Magdeburg and back in 13 hours and

2 minutes. A new Parseval airship also was tested in a long distance trial. The active and intelligent interest shown by the German Army in aeronautics centered about the new military airships Gross II, Parseval II, and the reconstructed Zeppelin III, all named after their designers. They were in constant use and various appliances and improvements were added from time to time. Germany has military airships that are not only portable but are independent of a balloon house and this is considered as adding to their availability. In March it was announced that Germany had decided to establish a military airship station near the French frontier, while naval airship stations were planned for Wilhelmshafen and Kiel.

Of great and sensational interest during 1908 was the trial of the large Zeppelin airship in long distance flights and its eventual destruction. Appreciation of Count Zeppelin's previous work found expression in an appropriation of \$537,500 by the Reichstag for the purchase of two of his airships and of \$100,000 to him in recognition of his previous service to science. Accordingly another huge dirigible was constructed which represented the results of Count Zeppelin's many years of experiment. This airship, 440 feet in length and known as the Zeppelin IV, was fairly entitled to the long distance honors of the year, for on July 2, it made a cross country trip from Friedrichshafen to Luzerne, a distance of 248 miles, within 12 hours and making a maximum speed of 34 miles an hour. On August 4, Count Zeppelin left Friedrichshafen in his airship for a 500 mile 24 hour trip, and after making a landing at Oppenheim, a distance of 260 miles in 9 hours, he returned to Stuttgart and finally landed at Echterdingen to renew his supply of hydrogen. It was here that a severe hurricane caused the airship to break its mooring cables, and this with the explosion of the motor worked the utter destruction of the airship. This misfortune at once aroused Germany and a national fund was speedily subscribed to rebuild the airship and to enable Count Zeppelin to resume his experiments, and particularly to reconstruct his airship No. I. On October 23, this reconstructed airship was manoeuvred with eminent success.

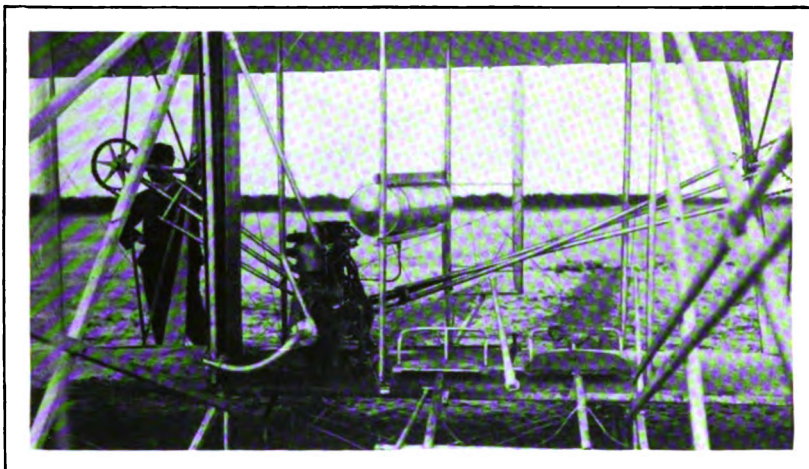
In the British Army a balloon and kite headquarters was maintained at Farnborough and here in 1907 was constructed the "Nulli Secundus" which after a limited period of activity was wrecked in October of that year. An improvement and reconstruction of the wrecked airship took place and on July 24, "Dirigible No. II" made an initial and successful trip. The interest of the British Government in military aeronautics was not as great as that of the continental powers, much to the regret of a number of British scientists and enthusiasts who urged the isolated position of the United Kingdom as rendering it particularly liable to aerial attack in the event of war and that adequate defence against such an emergency should be developed. The Russian War Office, which also had lagged behind in aeronautical work, announced in October that it would immediately put aside \$6,000,000 for the construction of airships and aeroplanes.

The first dirigible balloon to be secured by the United States Army was "Signal Corps Dirigible No. I," built in accordance with speci-



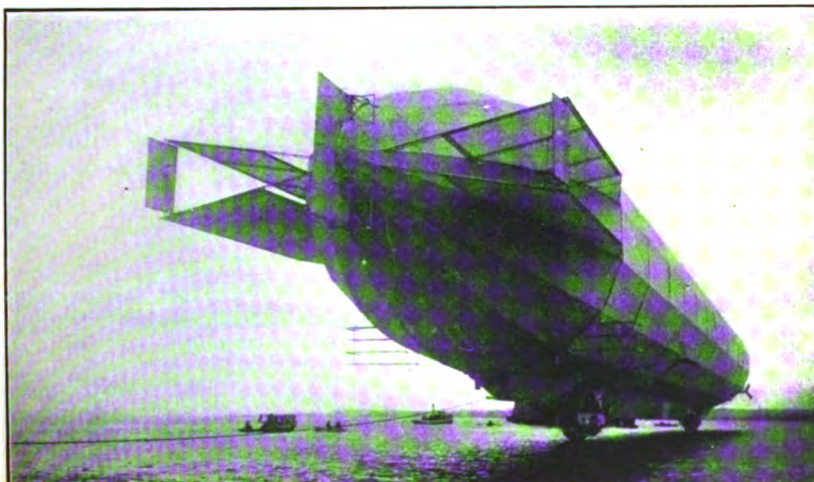
From "Engineering Magazine"

AEROPLANE OF WILBUR WRIGHT AT THE RACE TRACK, LE MANS, FRANCE



From "Engineering Magazine"

MOTOR AND PROPELLING MECHANISM OF WILBUR WRIGHT'S AEROPLANE



Photograph by Edwin Levick, New York

THE ZEPPELIN AIR SHIP OF 1908 IN FLIGHT

AERONAUTICS

fications issued by the Chief Signal Officer, Jan. 21, 1908, for an airship not over 120 feet in length and capable of making 20 miles an hour. A contract for such an airship was awarded to Captain Thomas S. Baldwin and a delivery was made in the following August. This enabled much to be done in training the officers and men of the United States Army in the practical use of a dirigible balloon, as well as accumulating data for theoretical studies. "Dirigible No. 1" had a gas bag, spindle shaped, 96 feet in length with a maximum diameter of 19½ feet and a volume of 20,000 cubic feet. Within the gas bag was a ballonet for air with a capacity of 2800 cubic feet. The gas bag was made of two layers of Japanese silk between which was a layer of vulcanized rubber. From the gas bag, but in close proximity to it, was suspended the car made of spruce 66 feet long, 2½ feet wide, and 2½ feet high. The propeller was located at the front end and was connected to a 20 horsepower water-cooled gasoline motor of the Curtiss type. It was of built-up spruce, 10 ft. 8 in. in diameter, with a pitch of 11 feet and revolved in normal operation at a speed of 450 revolutions per minute. For steering and maintaining a steady position there was a vertical rudder at the rear to which was attached a horizontal surface, and also a fixed vertical surface, while attached to the car in front was an adjustable horizontal surface which could be controlled by a lever. The airship had a total lifting power of 1350 pounds, 500 pounds of which was available for passengers, ballast and fuel. On its trial trip this airship was able to make a speed of 19.61 miles an hour over a measured course, and was duly accepted by the Government.

In view of the increasing interest in aeronautics the United States Signal Corps provided a large balloon plant at Fort Omaha, Nebraska, where there was erected a steel balloon house, 200 feet in length, 84 feet wide, and 75 feet high, which would be available for military airships of the size of "La République" or the Parseval dirigible. The station included an electrolytic plant for generating hydrogen, capable of supplying 3000 cubic feet per hour and a gasometer in which could be stored gas for emergency use up to 50,000 cubic feet. There was installed a compressor for charging the steel flasks or tubes in which the gas can be transported. These tubes are first tested in a high power hydraulic pump. As the Signal Corps intended to develop wireless telegraphy in connection with its dirigible balloons a 200-foot tower was erected to support the aerial wires.

The matter of airships and aeroplanes figuring in the warfare of the future was an important problem much discussed in 1908. At the Second International Peace Conference held at The Hague in the summer of 1907, there was presented a declaration prohibiting the discharge of projectiles and explosives from balloons reading as follows: "The contracting powers agree to prohibit for a period extending to the close of the Third Peace Conference the discharge of projectiles and explosives from balloons or by other new methods of a similar nature." This declaration was signed by the delegates of the United States alone among those of the first class powers and was ratified Mar. 10, 1908, but such action would seem to indicate that aerial warfare was a very open ques-

tion which promised to become as serious as the use of the submarine mine and torpedo boat.

THE BENNETT CUP. The annual competition for the James Gordon Bennett cup for balloons inaugurated at Paris in 1906 when the event was won by Lieut. Frank P. Lahm, U. S. A., in the Balloon "United States," and repeated at St. Louis in the following year to be won by Oscar Erbslöh with a trip to Asbury Park, N. J. of 873 miles, was not as successful in 1908 on account of the wind. Starting from Berlin on October 11, the 23 balloons in the competition were carried to the north and many descended into the sea. The winner was Colonel Schaeck in the Swiss balloon, "Helvetia," who was in the air for 74 hours, descending in the North Sea near Ersholmen, Norway. The "Helvetia" was towed to land by a fishing vessel and though making the longest distance, 1212 kilometers (753 miles), was protested for first prize, not coming down on land, but the protest was not allowed as the actual descent was on *terra firma*. Second and third places were secured by John Dunville in the British balloon "Banshee" and M. Geerts in the Belgian balloon "Belgica," with records of 425 kilometers (264 miles) and 423 kilometers (262 miles) respectively. The German balloon "Hergesell" descended in the water of the North Sea and Lieutenants Foertsch and Hummel were drowned. It must be remembered that in this competition the balloons are not dirigibles and are carried by the wind, the pilots being concerned in securing the most favorable altitudes and air currents.

On Nov. 18 the longest balloon trip of the year was made by A. B. Lambert, and H. E. Honeywell. Starting from St. Louis and landing near Tiger, Ga., a distance of 461 miles in 18½ hours with three landings en route. A 65,000 cubic foot aerostat was used.

AEROPLANES. See AERONAUTICS.

AFGHANISTAN. An independent country of Central Asia, with an area estimated at 225,000 square miles and a population of 5,000,000. The principal cities are Kabul, the capital, 70,000 inhabitants; Herat, 45,000; Kandahar, 35,000. Coal of inferior quality has been found not far from Kabul. A gold mine near Kandahar is worked by a British company. It was supplied with stamping machinery in 1904, and in 1908 some additional machinery was brought up to complete the equipment. In 1908 a boot factory was started in Kabul, and a wool mill was being erected by a British subject. Electric power has also been established at Kabul. The foreign trade is principally with British India and Bokhara. During the year ending Mar. 31, 1907, the imports from India amounted to Rs. 11,247,558, and exports to India, Rs. 9,704,523 (1 rupee = 32.44 cents). Imports from Asiatic Russia were worth about \$520,000, and exports to it, \$1,600,000. The principal imports are cotton goods, indigo, sugar, and Chinese tea. The principal exports are horses and cattle, grain, fruits, vegetables, spices, tobacco, silk, wool, and hides. Good roads for wheeled traffic have been constructed from the Khyber Pass to Kabul and from the Bolan Pass to Kandahar. The road between Kabul and Kandahar was reported in 1908 to be fairly good for motoring. A British railway parallels the Afghan frontier and has pushed out two spurs towards Afghanistan, one through the Bolan Pass to Chaman, on the

Afghan border, and another to Jamrud, at the mouth of the Khyber Pass, 20 miles from the Afghan border. The Russians have a railway through Merv to Kushk, just inside the Afghan frontier, not far from Herat, and a line parallels the frontier from Merv to Bokhara, Samarkand, and Tashkent, where it connects with the main Russian railway system in Central Asia. Between Chaman and Kushk the distance is under 450 miles.

GOVERNMENT. The Ameer in 1908 was Habibullah Khan, who succeeded his father, Abdur Rahman Khan, October 3, 1901. The political organization is of the feudal type. The country is divided into four provinces, administered by governors: Kabul, Turkistan (with Badakshan), Herat, and Kandahar. Justice is administered by the nobles. Taxes are paid in kind. The Ameer receives from the British-Indian government an annual subvention of 1,800,000 rupees, and his relations with foreign powers have to be regulated through that government. The strength of the army is estimated at between 60,000 and 90,000 men, including 9000 cavalry and 360 guns. Every seventh man is subject to conscription. At Kabul there are gun factories and an arsenal.

HISTORY. In the Anglo-Russian convention of 1907 dealing with the territorial interests of the two powers in Central Asia the British Government declared that it had no intention of changing the political status of the country, and would neither annex nor occupy any portion of it; and the Russian government, that it recognized Afghanistan as outside the sphere of Russian influence, and would conduct all political relations with it through the British Government. This arrangement encountered some criticism, but in practice it served to prevent the jealousies and fears which had arisen between the two Powers in the past. The chief event in 1908 was the participation of bands of Afghans in the Mohmand revolt on the Indian frontier (see INDIA, paragraphs on *history*). Bands of Afghans repeatedly crossed the border and joined the Mohmands in their attacks on the British. Even after the Mohmand uprising had been put down, the Afghan attacks continued. There seemed at first no evidence of any effort on the part of the Ameer to restrain his subjects, and the Indian Government made urgent protests against this violation of Indian territory. By some it was explained as a result of the plots formed against the Ameer by his brother, Prince Nasrullah. The Ameer had lately been absent from his capital, and it was said that his brother wished his downfall, and to that end was endeavoring to get him into difficulties with the Indian Government. To this embarrassment in his home affairs, the Ameer's inaction was attributed. In answer to the British Indian protests, however, the Ameer issued strict commands, calling back his subjects and forbidding the Afghans to cross the border, and as a result gradually the raiding ceased.

AFRICA. See ABYSSINIA; LIBERIA; EGYPT; MOROCCO; and British, French, German, and Portuguese colonies under their respective titles. Consult, also, the article **EXPLORATION**.

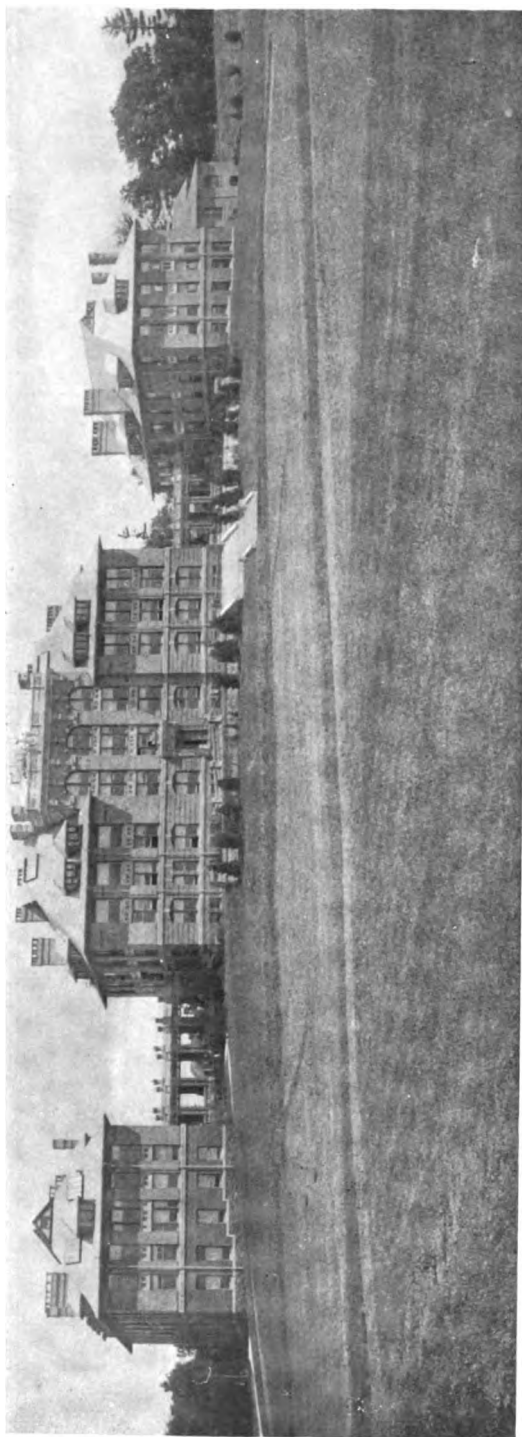
AFRICAN METHODIST EPISCOPAL CHURCH. See **COLORIED METHODISTS**.

AFRICAN METHODIST EPISCOPAL ZION CHURCH. See **COLORIED METHODISTS**.

AGRICULTURAL EDUCATION. A review of conditions in agricultural education at the close of 1908, as compared with twelve years ago at the beginning of the administration of Secretary James Wilson showed a remarkable development. In 1897 the total income of the agricultural and mechanical colleges was \$5,000,000, in 1908 it was over \$18,000,000. The property of these institutions was then valued at \$51,000,000, in 1908 at \$106,000,000. Then there were less than 4,000 students in agricultural courses, in 1908 there were nearly 14,000. In the field of secondary and elementary instruction in agriculture the progress was even more remarkable. In 1897 Minnesota had the only well established State agricultural high school, while Alabama was just launching its system of Congressional district agricultural schools. In 1908 there were 15 agricultural high schools of the Minnesota type and 40 other agricultural high schools receiving State aid, 16 privately endowed colleges and high schools giving secondary instruction in agriculture, 115 State and county normal schools preparing young people to teach agriculture, and several hundred public and private high schools and academies giving some instruction in agriculture. There were also 16 institutions offering correspondence and reading courses in agriculture.

In 1897 the teaching of agriculture in the public elementary schools was scarcely thought of, in 1908 there were 13 States in which it was required by law in the rural public schools. It was encouraged by State and county school officers and taught in some of the rural schools of 31 other States. In all 41 States and outlying possessions were making some effort to teach their youth the underlying principles of agriculture.

THE GRADUATE SCHOOL OF AGRICULTURE. The Third Session of the Graduate School of Agriculture was held at Ithaca and Geneva, New York, July 6 to 31, under the auspices of the Association of American Agricultural Colleges and Experiment Stations with Dr. A. C. True as dean. A combination of favorable circumstances resulted in a session of unusual interest and importance, and an enrollment that was much larger than at either previous session. The course of study embraced seven main lines; biochemistry, agronomy, horticulture, entomology, dairy husbandry and dairying, poultry, and veterinary medicine. The instruction was given by means of lectures and seminars which were supplemented by a number of special sessions and conferences relating to agricultural education. The faculty numbered 60 in addition to 18 speakers at special sessions and conferences. These included 19 officers of the United States Department of Agriculture, 25 members of the faculty of Cornell University, 7 members of the staff of the New York State Experiment Station, and 17 professors and experts from 10 other agricultural colleges and experiment stations, besides the United States Commissioner of Education, representatives from universities not included among the land-grant institutions, one representative from Carnegie Institution, Director A. D. Hall of Rothamsted Experiment Station, England, and Professor Dr. N. Züntz, professor of animal physiology in the Royal Agricultural College of Berlin. The total enrollment of students was 164, including 15 who were also registered in the Graduate School of Home Economics. There were students from



THE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY
ITHACA, NEW YORK

37 States and the District of Columbia, 9 students from Canada, 2 from China, and 4 from India. More than two-thirds of these students held positions in the agricultural colleges and experiment stations, and at least 40 of them were heads of departments.

AGRICULTURAL COLLEGES. The agricultural and mechanical college of Hawaii was designated the College of Hawaii, and located at Honolulu. It opened its doors February 3, 1908, with the inauguration of a preparatory course and followed two weeks later with a short course which was attended by about 50 students. The legislature of Porto Rico appropriated \$40,000 for a college of agriculture and mechanic arts at Mayaguez. This was to be a department of the University of Porto Rico which now includes, in addition to the college of agriculture and mechanic arts, a normal department, an agricultural department, and an elementary industrial school, all at Rio Piedras. The College of Hawaii and the University of Porto Rico were designated by the Secretary of the Interior to receive the benefits of the Act of 1890, and supplementary acts appropriating Federal funds for the encouragement of instruction in agriculture and the mechanic arts in the several States and Territories.

The noteworthy appropriations of the year 1908 for agricultural college buildings and maintenance included \$200,000 in Kentucky, \$93,000 in Massachusetts, \$240,000 in Ohio, \$61,000 in New Jersey, and \$87,000 in Oklahoma. New buildings for instruction and laboratory work in agriculture were completed at the Ohio State University, Pennsylvania State College, University of Tennessee, Nebraska School of Agriculture, New Hampshire College of Agriculture and the Mechanic Arts, and University of Wyoming. The University of California expended during the year more than \$780,000 on buildings, including \$53,000 on new buildings at the University Farm at Davis. At the University of Maine the cornerstone for a new \$50,000 agricultural building has been laid, and at the University of Missouri the contract has been let for a new agricultural building and cold storage and ice-making plant to cost \$100,000. The University of Georgia is completing a \$100,000 agricultural building.

The agricultural colleges have given much attention to the development of graduate departments and to the strengthening of their agricultural courses. The formal opening of the Graduate School of the University of Illinois, which is supported by a State appropriation of \$50,000 annually, occurred February 4 and 5, 1908. The Bussey Institution, established in 1870 as a school of agriculture of Harvard University, was closed as an under-graduate institution and was to be superseded by an institution for advanced instruction and research in agriculture. The Massachusetts Agricultural College made formal announcement of a graduate department and reorganized its faculty into divisions of agriculture and horticulture with a dean at the head of each. It was the plan eventually to group all the departments of the college into divisions in charge of deans. Similar action was taken at the Alabama Polytechnic Institute where deans have been placed in charge of the faculties of the academic department, engineering and mines, and agricultural science. At the Oregon College the entrance requirements to the college courses were

raised and a two-year industrial course was established to connect the elementary schools with the college. The college was also organized into schools of agriculture, engineering and mechanic arts, domestic science and arts, and commerce, and professorships were established in veterinary science and industrial pedagogy. In Georgia a much larger proportion of general instruction in agriculture was introduced into the freshman and sophomore years, and electives were provided for the junior and senior years to allow students to specialize in agronomy, animal husbandry, horticulture, or agricultural education. The Wisconsin University took similar action with reference to its four-year course in agriculture and established a two-year middle course with entrance requirements the same as for the four-year course but with a larger percentage of agricultural work than is given in the first two years of the regular four-year course. The New York State College of Agriculture was among the first of the colleges to announce definite requirements in farm practice for graduation from the four-year courses. Candidates for degrees must know how to harness and drive horses, prepare land, cultivate, plant and harvest crops, and perform other practical operations of the farm, orchard and garden. This institution was also offering its students definite training for farmers' institute work and other forms of extension work. The Rhode Island College gave its courses of study a general reorganization, providing among other things a four-year teachers' course in applied science with options in agriculture, chemistry and biology. Clemson College in South Carolina adopted a plan to differentiate more clearly the work of the college from that of the experiment station and provided for the appointment of several new men in its college of agriculture. It also established a permanent school of cotton grading, designed to train experts in handling and marketing cotton. The colleges were also actively engaged in developing courses intended to train teachers of agriculture for elementary and secondary schools. The University of Nebraska established a teachers' college which offered considerable work in agriculture, the Michigan Agricultural College organized a department of agricultural education. Summer schools for teachers of agriculture were held at the agricultural colleges in Nebraska, Michigan, Massachusetts, Minnesota, North Carolina, Tennessee, and Wisconsin.

COLLEGE EXTENSION AND SHORT COURSES. The short courses for adult farmers developed rapidly and in many cases along highly specialized lines. Summer schools of forestry were held in California and Minnesota. Extension departments were established in Wisconsin, Indiana, and West Virginia. In New York a State agricultural experimenters' league was organized to aid in the coöperative and demonstration work of the extension department. "Farmers' Week" was the name given to one of the newer forms of short course work which has been of material assistance to many adult farmers. Farmers' Institutes were held during the year in all of the States excepting Louisiana and Nevada, and in all the Territories excepting Alaska and Porto Rico. In 45 States and Territories the number of institutes held was 4,643, a total of nearly 15,000 sessions with an attendance of over 2,000,000 persons. The total appropriations for this work amounted to over

\$325,500, an increase of \$41,000 over 1907. Eleven States reported round-up institutes, 8 ran railroad special trains, 10 held movable schools of agriculture with an attendance of 6,849, and 2 held field meetings continuing through 9 days. There were 732 women's institutes in 15 States, 174 boys' institutes in 5 States, and many other special forms of institute work.

ELEMENTARY AND SECONDARY SCHOOLS. There was rapid progress in the movement for the teaching of agriculture in schools below college grade. Secondary schools of agriculture were established in connection with the agricultural colleges in South Dakota, Texas and Virginia. The appropriation for each agricultural high school in Alabama was increased from \$2,500 to \$4,000 annually, and the legislatures in Michigan and Mississippi provided for the establishment of county agricultural high schools. New agricultural high schools were appropriated for in New York, at Alfred and at Morrisville. Virginia appropriated \$20,000 a year for two years with which to commence the teaching of agriculture and domestic science in one high school in each Congressional district. The Oklahoma legislature, in carrying out the provisions of the State constitution requiring the teaching of agriculture and domestic science in the common schools, provided for the most comprehensive scheme of instruction in agriculture to be found in the United States. This included the State Agricultural and Mechanical College, several State normal schools in each of which there was a department of agricultural and industrial education, agricultural high schools in each judicial district of the State, and the teaching of agriculture and domestic science in every public school. Two of the agricultural high schools were established and four of the State normal schools were teaching agriculture by the end of the year. Several public high schools in Illinois, Minnesota, Tennessee, Texas, and other States recently organized courses in agriculture on an efficient basis. West Virginia and Oklahoma added to the list of States requiring the teaching of agriculture in all rural schools. Boys' agricultural clubs and girls' domestic science clubs were coming to be effective agencies for extending the work of the elementary schools in many of the States. The most recent and notable developments in this movement have been in Georgia, Indiana, Michigan, and Nebraska.

LITERATURE. The year was noteworthy for the appearance of an unusual number of text-books and other aids in elementary agriculture. Among the text-books are the following: C. W. Davis, *Rural School Agriculture*; F. S. Earle, *Southern Agriculture*; J. F. Duggar, *Agriculture for Southern Schools*; A. M. Soule and E. H. Turpin, *Agriculture: Its Fundamental Principles*; W. C. Welborn, *Elements of Agriculture*; A. M. Ferguson and L. L. Lewis, *Elementary Principles of Agriculture*; and A. W. Nolan, *One Hundred Lessons in Agriculture*.

AGRICULTURAL EXPERIMENT STATIONS. The development of the stations in the United States continued to be most powerfully affected by two opposite influences. On the one hand the amount and character of the scientific work was rapidly being changed for the better through the operation of the Act of Congress

of March 16, 1906 (Adams Act). This opened the opportunity for an increase in the amount of "original research" in agriculture and at the same time by its limitations necessitated the employment of a much greater number of thoroughly trained scientists. The effect of this was manifested not only in increased specialization of research work and the more complete separation of the experiment station from the departments of instruction in the agricultural colleges, but also by the creation of a stricter scientific atmosphere and point of view in the stations. On the other hand public demand for practical information having a scientific basis broadened greatly. This could no longer be satisfied by the dissemination of such information through publications. More and more there was insistence on local tests and demonstrations in order that practical farmers and horticulturists might have ocular evidence that the results claimed by the stations really could be applied to the practice of agriculture. The stations therefore were led to organize this more popular work in a much broader way than heretofore. It was not difficult to secure liberal grants of money from the State legislatures for these purposes and the establishment of substations, demonstration fields and cooperative experiments therefore proceeded rapidly in many States. This movement had in many features run parallel with that of the agricultural colleges in the development of various forms of extension work and the respective relations of colleges and stations to these popular enterprises have not yet been fully settled.

The increased popular interest in the inspection of foods, feeding stuffs, fertilizers, insecticides, fungicides, and other materials also led to largely increased burdens on the stations in their work related to such inspection. It was natural, therefore, that the attention of the agricultural colleges and experiment stations should have been largely centered in 1908 on the problems of perfecting organization to meet the new conditions confronting them. It was for this reason that the report of the Commission on Agricultural Research appointed in 1906 by the Association of American Agricultural Colleges and Experiment Stations was awaited with great expectation. This Commission consisted of President David Starr Jordan of Leland Stanford, Jr., University, California; President Carroll D. Wright of Clark College, Massachusetts; Dr. H. P. Armsby of State College, Pennsylvania; Dr. W. H. Jordan of the New York Agricultural Experiment Station, and Mr. Gifford Pinchot of the United States Department of Agriculture.

By the terms of its instructions the work of the Commission was strictly limited to an inquiry on the organization and policy "that should prevail in the expenditure of public moneys provided for scientific experimentation and research in the interests of agriculture." Its report, submitted to the convention of the Association at Washington in November, 1908, contained the following recommendations, which after discussion were adopted by the Association:

(1) Every effort should be made to promote the training of competent investigators in agriculture both in the agricultural, and, so far as practicable, in the non-agricultural, colleges and universities, and their training should be as broad and severe as for any other field of research.

(2) The progress of agricultural knowledge now demands that agricultural research agencies shall deal as largely as possible with fundamental problems, confining attention to such as can be adequately studied with the means available.

(3) The work of research in agriculture should be differentiated as fully as practicable, both in the form of organization and in the relations of the individual investigator, from executive work, routine teaching, promotion and propaganda, and should be under the immediate direction of an executive trained in the methods of science who should not be hampered by other duties of an entirely unlike character.

(4) The investigator should be free from all coercion whatever. In reaching his conclusions he should be equally free from the prescription of received opinion and the temptation to exploit his results for the purpose of obtaining future support. To this end, his work should be as far removed from immediate dependence upon legislation as is consistent with due responsibility to the public, and his relations to the public and to the organization of which he is a member should be such as to promote individual initiative and not interfere with freedom of conclusion or utterance on scientific questions.

(5) There should be a clearer definition of the relative fields of work of the United States Department of Agriculture and the experiment stations. The dominance of the stations within their respective fields should be preserved and their growth fostered, as agencies for the investigation of local questions and of the more individual scientific problems. The federal agency, on the other hand, should cultivate the almost limitless field offered by questions having national or interstate relations and by those broad scientific problems requiring heavy expenditures, elaborate equipment, long continued study and the correlation of the results of many investigators, which efforts are usually beyond the means of an individual station. On many questions the harmonious coöperation of the two agencies is essential to the highest efficiency of effort.

(6) Any research agency charged with a single main line of investigation should be so organized that it may employ within itself all necessary processes in any branch of science. The coöperation of any or all the departments of an experiment station on a single problem, when necessary, should be a fundamental requirement.

(7) Research work, both national and state, should be provided for by separate, lump-sum appropriations, to be distributed according to the discretion of the responsible executive head of each agency.

(8) Investigation into the business, economic, social and governmental conditions affecting agriculture should be undertaken and should be maintained on a permanent and effective basis.

(9) An advisory board is suggested, consisting of members appointed by the Secretary of Agriculture and by the Association of American Agricultural Colleges and Experiment Stations respectively, which shall confer with the Secretary of Agriculture regarding the mutual interests of the Department and the Stations and shall consider the promotion of agricultural investigation in general.

The report of the Commission was supplemented by that of the standing committee of the association on station organization and policy, which dealt with several of the matters discussed in the former report but in a more specific way. It has especial interest because it was to a large extent based upon the consensus of opinion of station men as to the most practicable means of securing the highest efficiency in station work.

This committee recommends that administrative officers should be scientists as well as good business men with a large outlook, that the station work should be concentrated on a few definite and well-planned projects, that every effort should be made to retain experienced and well-trained investigators, that if inspection work is done at all it should be clearly differentiated from research as regards funds, workers and laboratories; and that investigators should do little, if any, teaching.

Federal funds were used in the maintenance of at least one experiment station in each of the States and Territories, including Alaska, Hawaii, Porto Rico and Guam. In Alabama, Connecticut, Hawaii, Louisiana, Missouri, New Jersey, New York and North Carolina separate stations were maintained wholly or in part by State funds, or by private contributions. There were also a considerable number of substations. Excluding the substations, there are 61 stations in the United States, 56 of which receive appropriations provided for by Acts of Congress. The staff of these stations includes over 1100 administrative officers and scientific workers.

The total income of stations maintained under the Act of 1887 (Hatch Act) during 1907 was \$2,334,672, of which \$1,056,000 (Hatch fund \$720,000, Adams fund \$336,000) was received from the National Government, the remainder, \$1,278,672, coming from the following sources: State governments, \$770,016; individuals and communities, \$15,360; fees for analyses of fertilizers, \$119,471; sales of farm products, \$169,553; miscellaneous, \$204,272. In addition to this the Office of Experiment Stations had an appropriation of \$293,220 for the fiscal year 1908, including \$72,000 for the insular stations; \$5,000 for nutrition investigations; \$150,000 for irrigation and drainage investigations, and \$5,000 for farmers' institutes and agricultural schools. The value of the additions to the buildings and equipment of the stations in 1907 was \$387,662. During the year the stations published 459 annual reports, bulletins, and circulars, which were supplied to about 775,000 addresses.

The general results obtained by the Office of Experiment Stations during the twenty years of its existence as a general agency for the promotion of the interests of the stations were summed up by the Secretary of Agriculture in his report for 1908, as follows:

"By collecting and disseminating the results of their work, this Office has done much toward extending their influence throughout this and other countries; by collating the work of similar institutions throughout the world it has brought our stations into close and helpful touch with the whole field of agricultural science; by setting high standards of organization and work, it has led the stations to make constant progress in establishing themselves on firm foundations and increasing the efficiency of their operations; by tactful, yet cordial, criti-

cisms of their work and expenditures, it has done much toward strengthening the weak places and effecting a wise and satisfactory use of the public funds entrusted to the stations. Its relations with the stations have never been more cordial than they are at present, and its influence never broader nor more potent."

By authority of Congress a station was established in 1908 under direction of the Office of Experiment Stations in the Island of Guam. This fertile island of nearly 300 square miles had a population of over 10,000 people who formerly were chiefly engaged in agricultural pursuits. But so many cultivators had left their plantations that not sufficient food was produced to properly sustain the inhabitants. Rice and other food stuffs were imported from Japan. Road building and other internal development work undertaken since the American occupation of the Island could not be continued on a large scale and something must be done to get the people back on their farms. The Island was under the control of the Navy Department and the governors had undertaken some experiments in agriculture, which were to be continued and expanded at the new station. There were now attempts to grow corn, rice, coffee, cacao, sugar cane, beans, tobacco, sweet potatoes and yams, with more extensive plantings of bananas, coconut and breadfruit trees. The first work of the station was to be with a number of these crops. There was a great lack of cultivated grasses and pastures and need of legumes for forage and soil renovation. Studies of a kind of mealy bug which has attacked the coconut trees were begun.

At the Hawaii Station experimental shipments of pineapples to San Francisco and Chicago demonstrated that this fruit can be marketed in good condition at any point within thirty days communication with Honolulu. (See HORTICULTURE.) Experiments in harvesting salt-marsh rice for hay showed that Hawaii could produce enough rice hay to supply the local market and that this would be more profitable than the production of a low grade of rice for human food.

In Porto Rico experiments with introduced coffees were beginning to give good results and the Java coffees were thought likely to retain their characteristic flavor when grown under Porto Rican conditions. The East Indian mango, also introduced, seemed well adapted to all sections of the island. The station's work in breeding pigs and poultry already was attracting much favorable attention. A dairy and silo have been built. A station building was being erected with \$20,000 appropriated by the insular legislature.

A new station was opened in Alaska near the flourishing town of Fairbanks on the Tanana River and farming operations are to be conducted there on a relatively large scale. Some varieties of oats, barley, and wheat were found to have matured grain every year since 1900 at Rampart in the Yukon Valley. The station's live-stock work was consolidated at Kodiak where there was a thriving herd of 60 pure-bred Galloway cattle.

In Portuguese East Africa a central experiment station with provision for work in agriculture, entomology and veterinary medicine was established at Lourenco Marques and plans were being made for substations at Chai-Chai on the Limpopo River, at Inhambane south of, and at Quelimane north of, the Zambesi River.

An agricultural reconnaissance of East Africa and Zambesia was to be undertaken, under the charge of Mr. O. W. Barrett formerly of the U. S. Department of Agriculture. In the Gold Coast a station was established at Kumasi for experiments with rubber, cotton and jute and an experimental cotton farm at Labo-labo is being conducted by the British Cotton Growing Association.

An annual appropriation of \$97,000 was placed at the disposal of the director of agriculture of Tunis for the improvement and encouragement of the cultivation of native plants. A part of this fund was being used for establishing experimental fields. A recent report in *Experiment Station Record* on the moor experiment stations in Germany indicates that they are doing much to bring into agricultural use large tracts of land which have lain idle for centuries.

AGRICULTURE. Agriculture continued to prosper exceedingly during 1908. Though climatic conditions, the ravages of insect pests and fungi, the increasing scarcity of farm labor and other untoward conditions resulted in reduced yields of some crops, the aggregate value of farm products in the United States reached the maximum in the nation's history. The improved financial status of the farmer enabled him to improve his farm, his home and his manner of life in increasing degree. He availed himself as never before of the efforts of public agencies for his welfare, such as the Federal Department of Agriculture, the State experiment stations, agricultural colleges and schools, State boards and commissioners of agriculture, and other factors making for rural betterment, and these have been unusually active and effective. More attention likewise was accorded by the general public to his problems and needs, and the year has been notable for the evident trend of public interest toward rural life and increased recognition of the dignity and importance of agricultural interests.

CROP YIELDS AND VALUES. The corn crop of the year aggregated 2,668,651,000 bushels, which is slightly above the average for the past five years. The value, owing to the high price per bushel, was about 3 per cent. above the five-year average and reached \$1,616,145,000, a sum sufficient to cancel the interest bearing debt of the United States, and to pay for the Panama Canal and 50 battleships. The cotton crop was 12,920,000 bales, and for the first time in the history of the country's agriculture, it is estimated to exceed the hay crop in value, although the farm price for cotton was two cents per pound lower than in 1907 and the hay crop of 70,798,000 tons was the largest ever harvested and its value, \$635,423,000, fully 6 per cent. above the five-year average.

The spring wheat crop suffered considerably from drought, but this shrinkage was more than counterbalanced by the winter wheat crop which brought up the total yield to a little above the five-year average. Of the total quantity, 664,602,000 bushels, over 50,000,000 bushels were of the durum or macaroni type which was proving especially adapted to growth in regions with deficient rainfall. The value of the wheat crop was \$616,826,000, which was more than \$60,000,000 in excess of that for any previous year. The oat crop, 807,156,000 bushels, valued at \$381,170,000, was decidedly larger and more valuable than for the year previous although because

of protracted drought it was somewhat below the five-year average. With barley, both the production, 166,756,000 bushels, and the value, \$92,442,000 had been exceeded only once. The yield of rye, 31,851,000 bushels, was practically an average crop, but its value, \$23,455,000, had been exceeded but once. The rice crop, 21,890,000 bushels, valued at \$17,771,000, was the largest and most valuable ever raised. The farm value of all cereal crops (including corn and buckwheat) was estimated at \$2,759,814,000, nearly \$400,000,000 above that of 1907, and about 35 per cent. above the average for the previous five years.

The sugar beet crop, valued at \$21,500,000, exceeds in both quantity and value all previous years. The tonnage exceeds the five-year average by 45 per cent. The plantation value of sugar cane, molasses and sirup is estimated at \$34,000,000, about 10 per cent. above the five-year average. The sugar production of the year was estimated at about 900,000 short tons, an amount much above the total for the highest previous year. The total value of the refined sugar from beets, the raw sugar from cane, the beet pulp, the molasses and sirup of cane and sorghum, and the maple sugar and sirup, was estimated at \$94,000,000.

Unfavorable weather reduced the potato crop to 278,985,000 bushels, but the value, \$197,039,000, has never been equalled. Tobacco production was below the average because of depressed prices, but the value, \$70,000,000, was about that of 1907. On account of the extremely low price realized for hops in 1907, the production and value, estimated respectively at 39,000,000 pounds and \$4,000,000, are much below the five-year averages. For the first time the value of all farm crops equalled \$5,000,000,000.

Dairy products were valued at nearly \$800,000,000; poultry and egg products were worth as much as the cotton crop, the hay crop or the wheat crop. In the aggregate the value of animals sold and slaughtered and of animal products at the farm amounted to about three-eighths of the value of all farm products, approximating \$3,000,000,000.

EXPORTS. The exports of agricultural products were valued at \$1,017,000,000, an amount greater than for any year except 1907. The reduction of \$37,000,000 from that year was chiefly due to the falling off in value of cotton exports, but these were still the largest item, being valued at \$438,000,000, with grain and grain products second with \$215,000,000 and packing-house products third with \$196,000,000.

The exports in forest products are beginning to decline, chiefly in lumber and timber. The total exports from this country were apportioned in value as follows: animals and animal products, 16 per cent.; cotton and cotton products, 27 per cent.; grain and grain products, 12 per cent.; all other products chiefly sustained by agriculture, 6 per cent.; forest products and other products chiefly dependent on them, 8 per cent.; and exports not of agricultural or forest origin, either fully or in principal degree, 31 per cent.

IMPORTS. The total imports of agricultural products in 1908 were valued in the countries from which they were exported at \$540,000,000. The chief items were silk, wool, hides, coffee, various vegetable fibres and oils, fruits, sugar and molasses, tea and tobacco. There was diminution in value of \$87,000,000, principally in

packing-house products. There was also a diminution of \$24,000,000 in forest products, found almost entirely in india rubber, but there were gains in pulp wood and wood pulp.

The annual balance of international trade is computed as in favor of the United States to the extent of \$488,000,000 for farm products, while for all other products it was \$178,000,000. The agricultural balance was exceptionally high, having been equalled only in 1901 and 1898. It is also remarkable as having been attained in spite of the steady growth of the population, the immigration of non-agricultural peoples, and the diminishing fraction of the population that is engaged in agriculture.

FARM VALUES. The number of farms in 1908 was estimated at 6,100,000, an increase of 33.6 per cent. since 1890. The acreage increased during the same period from 623,000,000 to 839,000,000 acres. The capital of the farmer in the forms of land, buildings, improvements, live stock and machinery was estimated at about \$28,000,000,000, an increase of from 75 to 80 per cent. over 1890. The value of the farm animals on farms and ranges Dec. 31, 1908 was estimated at \$4,525,259,000, an increase of \$194,029,000, or 4.5 per cent. during the year. The abandoned farm and the run-down cotton plantation that no lender wanted as a mortgage security were being sought for investment, and their owners could borrow without mortgaging. Bank deposits in the distinctively agricultural States also largely increased, and while these deposits were not entirely from farmers, the gain was largely derived from the increased returns from the sales of farm products.

LEGISLATION. Federal legislation during 1908 pertaining to agriculture was embodied largely in the appropriation act for the Department of Agriculture. In this act provision was made for the continuance of most of the lines of work already under way, and notably larger sums were made available for the administrative duties, such as the management of the National Forests, the pure food and drug inspection, and the campaign against the gipsy moth, cattle tick and boll weevil. Among the new lines of work authorized may be mentioned the inauguration of evaporation investigations by the weather bureau and studies of the extent and prevalence of tuberculosis among dairy cattle, the making of denatured alcohol under farm conditions, the testing of plants for paper-making, an inquiry into the production of turpentine and resin, and the establishment of a standard of cotton grading. Provision was also made by Congress for publishing 100,000 copies of the Special Report on the Diseases of Cattle. A large number of bills of agricultural interest were introduced into Congress including measures to extend National aid to secondary agricultural schools, branch experiment stations and normal schools, to provide for instruction in forestry and mining in agricultural colleges, to provide for an agricultural census, to establish Federal grain inspection, to regulate commerce in nursery stock and insecticides, to extend National aid to a variety of drainage projects and to public highway improvement, to establish postal savings banks, to extend the parcel posts privileges on rural free delivery routes, to repeal the tax on oleomargarine, and to acquire National forest reserves in the Southern Appalachian and White Mountains, but none of these bills was enacted during the year.

The State legislatures as a rule made more liberal provision for the work and equipment of the agricultural colleges and experiment stations than ever before (see AGRICULTURAL EDUCATION and AGRICULTURAL EXPERIMENT STATIONS), indicating a growing appreciation of the value of these institutions. Mississippi, Oklahoma and Virginia authorized the establishment under certain conditions of county or district agricultural high schools. In Mississippi boards of supervisors were empowered to offer prizes to boys for corn-growing contests. A live stock sanitary board and county commissioners of agriculture were provided in Mississippi, and New Jersey established a live stock commission with authority to purchase and maintain for service stallions of draft and coach types, and to make regulations relative to the use of other breeding animals. Kentucky passed a new food and drug law and Mississippi a feed stuffs inspection law. Massachusetts enacted several laws in the interest of forestry work.

COMMISSION ON COUNTRY LIFE. The year was especially noteworthy for the increased interest in agricultural welfare on the part of the general public. In August, a special commission was appointed by President Roosevelt to gather information relative to the betterment of the social, sanitary and economic conditions of country life as the basis for recommendations to Congress. This commission, known as the Commission on Country Life, was made up of Dean L. H. Bailey of Cornell University, chairman, Henry Wallace, editor of *Wallace's Farmer*, President K. L. Butterfield of the Massachusetts Agricultural College, Gifford Pinchot of the National Forest Service, and Walter H. Page, editor of the *World's Work*. Subsequently Charles S. Barrett of Georgia and William A. Beard of California were added to the commission. The commission devoted itself principally to securing a consensus of opinion as to the actual conditions prevailing over the country with reference to social and sanitary conditions surrounding country life, the educational facilities, the facilities for communication and for the conduct of business, farm labor and tenancy, coöperation in buying and selling and related matters, as well as becoming familiar with the various agencies in a position to assist in promoting rural welfare. Over 600,000 copies of a circular of inquiry were distributed not only to the farmers themselves but to men in contact with country life, members of agricultural organizations, business men, newspapers, country ministers and physicians, women's clubs, village improvement societies and rural delivery carriers. The commission also made a tour of the country, holding hearings at convenient points in the various sections. An unusual amount of interest and discussion was aroused in these ways, especially through the agricultural press and much good was accomplished by setting people to thinking seriously of the problems confronting country life and of the agencies necessary for their solution.

CONSERVATION OF NATURAL RESOURCES. The general subject of the conservation of all the natural resources received an unusual amount of attention during the year. A conference of the governors of the States, accompanied by a corps of scientists and other advisers, held a three-day session in May at the White House at the call of President Roosevelt. Forestry, irrigation and drainage were the agricultural phases most prominently before the conference,

but attention was also directed to soil conservation and a notable address was made by Mr. J. J. Hill on "The Natural Wealth of the Land and Its Conservation." Subsequently a Commission on the Conservation of the Natural Resources was appointed by President Roosevelt, which organized under sections of waters, forests, lands, and minerals, and held sessions in Washington in December. One practical outcome of this meeting was the withdrawal from entry pending examination of about 7,500 square miles of public lands in Wyoming, Idaho, and Utah believed to contain phosphate deposits of great value.

Another significant development of the year was the increasing recognition of agricultural work by educational and scientific bodies. In the National Education Association a department of rural and agricultural education was organized coördinate with other departments, and the February meeting of the department of superintendence was given up very largely to agricultural and other features of industrial education. The American Economic Association devoted an entire session of its annual convention to agricultural questions. At the Baltimore meeting of the American Association for the Advancement of Science at least 150 of the 1000 papers presented were of direct interest to agricultural science, many being by workers in the Department of Agriculture and the agricultural colleges and experiment stations.

Most of the numerous bodies immediately concerned with agricultural work held meetings during the year. The American Nature Study Society was formed at the beginning of the year for the advancement of all studies of nature in elementary schools. On December 31, the American Home Economics Association was organized in Washington, D. C. with an initial membership of over 800, with its purpose the furtherance of the study of home problems. The American Society of Animal Nutrition was formed at Chicago in November to promote investigation work in animal nutrition. The third session of the Graduate School of Agriculture was held at Ithaca and Geneva, N. Y. with the largest and most representative enrollment in its history. See AGRICULTURAL EDUCATION.

Questions arising in connection with the administration of the National Pure Food and Drugs Act, especially with reference to the propriety of the use of sulphur dioxide in the preparation of food products led to the appointment by President Roosevelt of a Referee Board on Foods with power to render a final decision on any matters of controversy. See FOOD AND NUTRITION.

FOOT-MOUTH DISEASE. An outbreak of contagious foot-and-mouth disease was reported in November. It is believed the infection was introduced from abroad as no cases had been known in this country for six years. A quarantine against the interstate movement of cattle from the States affected, viz., Maryland, Michigan, New York and Pennsylvania, was declared and a vigorous campaign of extermination was begun by the Federal Department of Agriculture.

CORN EXPOSITION. The second National Corn Exposition, declared by a farm journal to have been "the most elaborate demonstration of farm products ever held in this country," was held at Omaha, Neb., Dec. 9-19. Nearly 10,000 different exhibits relating more particularly to the production and utilization of corn, wheat, oats,

alfalfa and other crops were shown, representing 28 States. The prizes offered aggregated in value over \$50,000, and the attendance was estimated at 100,000. Unusual attention was given to educational phases, there being special exhibits of the work of 12 agricultural colleges and experiment stations, exhibits of farm machinery, a model kitchen, a students' judging contest, a distillery plant for the production of denatured alcohol, and a large amount of illustrative material from schools, boys' corn clubs and similar organizations.

LIVE STOCK EXPOSITION. The ninth International Live Stock Exposition held in Chicago Nov. 28 to Dec. 10, was as usual a great success. There were over 3,000 exhibits of cattle, horses, hogs and sheep and the attendance exceeded 500,000. The agricultural colleges and experiment stations were again conspicuous factors. The grand championship in the single steers contest, one of the most highly coveted honors, was awarded to Purdue University on the Angus two-year-old Fyvie Knight. A students' judging contest was participated in by 8 teams from institutions and won by the Iowa State College. The third National Dairy Show, held at Chicago during the Live Stock Exposition, was also successful, though the cattle exhibits were seriously curtailed by the quarantine for foot-and-mouth disease. Special features were a milk and cream contest representing 20 States and a students' judging contest.

INTERNATIONAL INSTITUTE OF AGRICULTURE. Considerable progress was made during the year in the organization of the International Institute of Agriculture, which was supported by 48 nations. A palatial building to serve as headquarters was erected by the Italian Government in Rome and was formally opened by the King May 23. A meeting of the general assembly of delegates which compose the management of the Institute was begun in November, Signor Tittoni, the Italian minister for foreign affairs, being elected president. Among the purposes outlined for the Institute were the collection, study, and publication of statistical, technical and economic information concerning farming, the commerce in farm products, and the prices prevailing in the various markets; the ascertainment of the wages paid farm labor; the publication of information concerning new plant diseases which may appear; the publication of information concerning agricultural coöperation, insurance and credit; and the submission to the adhering governments of measures for the protection of the common interests of farmers and for the improvement of their condition.

The international meetings of agricultural interest during the year included the great International Congress on Tuberculosis at Washington, D. C., at which considerable attention was given to bovine tuberculosis, the First International Congress for the Repression of Adulteration of Alimentary and Pharmaceutical Products, held at Geneva, Switzerland, and the First International Roads Congress and the First International Congress of the Refrigerating Industries, both at Paris.

AGRICULTURAL COÖPERATION. Economic coöperation by farmers in the United States continued to develop and it was estimated that more than one-half of the 6,100,000 farms were represented in this coöperation; the faction would be much larger if based on the total number of the more progressive type of farmers, to which

the coöperators mostly belong. The number of farmers' coöperative economic associations was believed to be fully 75,000, with a membership of over 3,000,000. Contrary to his reputation, the farmer is a great organizer, and he has achieved remarkable success in many lines of coöperation in which the people of other occupations have either made no beginning at all or have nearly if not completely failed. The lines along which farmers have more especially developed coöperation are five: live stock and tornado insurance, with cheese making and selling; irrigation; the warehousing of grain and cotton; telephone service and coöperative buying and selling. The buying was conducted by about 350 coöperative stores and more extensively by groups of farmers who buy potatoes, wheat, and other products for seed, or who buy from certain merchants and manufacturers under an agreement for discount from regular prices. Associations to regulate, promote, and manage the details of selling farmers' products were found in all parts of the United States. There was coöperation for selling by the growers of fruits, vegetables, nuts, and berries; by live-stock men; by the producers of cotton and tobacco, wheat, sweet potatoes, flax, oats, eggs, poultry and honey. Farmers coöperate to sell milk for city supply, to sell wood, cantaloupes, celery, cauliflower, citrus fruits, apples, and many other products.

There was also an immense number of farmers' associations of a semi-economic and educational character.

NEW BOOKS. Among the books of the year on agricultural topics were the following: W. F. Massey, *Practical Farming* (New York); L. H. Bailey—*Cyclopedia of American Agriculture*, Vol. III., "Farm Animals" (New York); C. E. Green and D. Young, *Encyclopedia of Agriculture* (Edinburgh and London); C. W. Burkett, *Soils* (New York and London); E. B. Voorhees, *Forage Crops* (New York and London); W. R. Beattie, *Celery Culture* (New York); W. W. Tracey, *Tomato Culture* (New York); F. H. Chittenden, *Insects Injurious to Vegetables* (New York and London); T. Shaw, *Feeding Farm Animals* (New York and London); H. W. Mumford, *Beef Production* (Urbana, Ills.); E. V. Wilcox and C. B. Smith, *Farmers' Cyclopedia of Live Stock* (New York and London); A. A. Brigham, *Progressive Poultry Culture* (Cedar Rapids, Ia.); H. W. Conn, *Practical Dairy Bacteriology* (New York and London); J. Michaels, *Dairy Farming* (Clemson College, S. C.); H. E. Van Norman, *First Lessons in Dairying* (New York); J. B. Davidson and L. W. Chase, *Farm Machinery and Farm Motors* (New York and London); E. R. Jones, *Notes on Drainage* (Madison, Wis.); C. G. Elliott, *Practical Farm Drainage* (New York); L. H. Bailey, *The State and the Farmer* (New York); K. L. Butterfield, *Chapters in Rural Progress* (Chicago); J. Collings, *Land Reforms Occupying Ownership, Peasant Proprietary, and Rural Education* (London).

UNITED STATES DEPARTMENT OF AGRICULTURE. The rapid growth of this Department continued during the year 1908. On July 1, 1908, there were on its rolls 10,420 persons, 2,488 employed in Washington and 7,932 elsewhere. The net increase in the force during the year was 1,313. The Agricultural Appropriation Act for 1908 carried \$11,872,106, including \$720,000 for the State agricultural experiment stations. To this must be added an appropriation of \$460,000 for

printing, carried in the Sundry Civil Act, and permanent appropriations of \$3,000,000 for the Federal meat inspection and \$528,000 for the stations under the Adams Act, making a grand total of \$15,660,106 and an apparent increase over the previous year of \$2,320,814, or about 15 per cent. A large part of this increase however was to be covered by the receipts from the forest reserves, from which \$1,839,374 was derived in 1907. A reservation of 12,800 acres in the Flathead Indian Reservation in Montana for a permanent range for a herd of bison to be presented by the American Bison Society was provided for. The legal business of the Department greatly increased and included in 1908, 401 cases against railway companies for violating the "twenty-eight hour law" (limiting the number of hours stock can be kept in cars without unloading). During the fiscal year 1908 the Department issued 1,522 publications, of which about 500 were new. The total number of copies printed was 16,875,516, of which over 6,000,000 copies were Farmers' Bulletins. The new buildings for the Department, erected at a cost of \$1,500,000, were completed and occupied. The library moved to the new building contained 100,000 books and pamphlets, as compared with less than 1000 volumes when established in the old building in 1868. Exclusive of annual reports of societies and institutions, 1,850 periodicals were regularly received.

The Weather Bureau has continued and extended its studies in the upper air with a view to the improvement of weather forecasting. By means of kites and captive balloons carrying instruments, accurate records were secured of conditions existing in the atmosphere at altitudes of 1 to 4 miles. This work was done at Mount Weather in the Blue Ridge Mountains of Virginia. As the result of the upper-air explorations and the extension of telegraphic service to all parts of the Northern Hemisphere a beginning was made in forecasting weather conditions for a week in advance.

Agents of the Bureau of Plant Industry making agricultural explorations in China, Korea and Central and Northern Asia in 1908 secured for introduction several varieties of a "Chinese date," new persimmons, scions of the famous Feitcheng peach (which weighs over a pound), wild and cultivated pears and hardy forage crops, especially drought resistant species. Eleven stations for experiments in "dry-farming" were established in the Great Plains. The coöperative demonstration work for the diversification and improvement of agriculture in the South was proving very popular. The Bureau had about 160 men engaged in this work in eleven States from Texas to Virginia.

The Forest Service made good progress in perfecting its organization for the management of the National Forests. Near the end of 1908 a considerable portion of its Washington force was transferred to stations in the West with a view to dealing with the problems of the National Forests at closer range. See FORESTRY.

The Bureau of Chemistry created the organization necessary to put the pure food and drugs act into effect. Branch laboratories for the examination of samples have been established in 21 cities and the inspectors collected about 13,400 samples of foods and drugs during the year. See FOODS AND NUTRITION.

The Bureau of Soils has surveyed 306 different areas, lying in 44 States and 2 Territories

and including a total area of 157,078 square miles. The soil experts not only examine and classify the soils but also study farm practices, adaptation of crops to soils and fertilizer requirements. The Bureau is coöperating with the Reclamation Service in surveying soils covered by the various irrigation projects.

The most important work of the Bureau of Animal Industry in 1908, in addition to its extensive service in connection with meat inspection (q. v.) was the suppression of the outbreak of foot-and-mouth disease mentioned above. The Bureau of Entomology has conducted an active campaign against the gipsy and brown tail moths which have threatened the destruction of forest trees in New England. Efforts were being continued to find effective means of combating the cotton boll weevil and public interest was being aroused in the relation of the common house-fly to the spread of typhoid fever. The Biological Survey estimated the damage to property by the house rat at \$20,000,000 annually. This rodent was also to be actively combated because of its agency in spreading the plague and other diseases. Experiments with various poisons and mechanical means of destruction were in progress. Recent investigations showed that the Beechy ground squirrel was susceptible of plague and carried the germ of the disease, which, as in the case of rats, was communicated to men through the agency of fleas.

The Office of Experiment Stations, in addition to its important work in relation to the agricultural colleges, schools, experiment stations and farmers' institutes (see AGRICULTURAL EDUCATION and AGRICULTURAL EXPERIMENT STATIONS) was continuing investigations on human nutrition with the respiration calorimeter (see FOOD AND NUTRITION) and on irrigation and drainage (see IRRIGATION AND DRAINAGE). The report of the Secretary of Agriculture for 1908, contains an interesting review of the progress of agriculture and agricultural science in the United States during the twelve years in which Mr. James Wilson has presided over the Department.

AIKEN, WILLIAM MARTIN. An American architect, died on December 12, 1908. He was born at Charleston, S. C., in 1855. After attending the University of the South he studied architecture at the Massachusetts Institute of Technology, and entered the office of H. H. Richardson, in Boston. Later he practised his profession in Cincinnati, Ohio, where he also taught at the Art Academy of that city. In 1894 he was appointed supervising architect of the United States Treasury Department. In this capacity he designed the new buildings for the mints at Denver and Philadelphia, as well as numerous post-office buildings and custom houses. He was consulting architect for New York City during 1901-1902. In 1899 he was appointed lecturer in the school of Architecture at Columbia University. With Russell Sturgis he compiled the well-known *Dictionary of Architecture*.

AIR SHIPS. See AERONAUTICS.

ALABAMA. One of the South Central Division of the United States. Its total area is 51,998 square miles, of which 719 square miles are water. The population in 1900 was 1,828,697. According to the Federal estimate the population in 1908 was 2,080,936. The capital is Montgomery.

MINERAL PRODUCTION. Coal and iron are the principal mineral products of Alabama. In the amount of iron produced Alabama ranks third in the number of States, being surpassed only by Minnesota and Michigan. According to the figures of the United States Geological Survey, the production of iron ore in the State in 1907 was 4,039,453 tons, valued at \$4,863,129 as against 3,995,098 in 1906. This, however, on account of the higher prices received was valued at \$260,410 more than the output of 1907. The United States Geological Survey has carried on studies of the iron ore districts of Birmingham, and it is estimated that the resources of ore in this district amount to about 340,000,000 tons. It will be seen therefore that the annual ore production of the State, although it is great in actual quantity, is small compared to its possibilities. In many portions of the State where iron is known to exist in large quantities, practically no mining has yet been carried on. Pig iron produced in Alabama in 1907 amounted to 1,686,674 tons as against 1,674,848 tons in 1906. On Jan. 1, 1908, there were forty-nine blast furnaces in the State, of which fifteen were in blast. The decrease was the result of the panic and a somewhat general strike which lasted throughout July and August. There were 51 blast furnaces in the State on Dec. 31, 1908, of which 25 were in blast. The aggregate production of pig iron in 1908 was 1,397,014 tons. In addition to the general depression, Alabama iron producers suffered also from strikes during the year. As a coal producing State Alabama ranks fifth, being surpassed only by Pennsylvania, Illinois, West Virginia, and Ohio. Alabama produced in 1907, 14,240,454 tons of coal valued at \$18,405,468. Estimates prepared by the chief mine inspector and by the secretary of the Co-operators' Association of the State indicate that the coal production for 1908 will be between 12,500,000 and 13,000,000 tons. Of the coal mined in 1907 1,762,948 tons were mined by machines, 197 of these being in use in that year, a decrease from the number employed in 1906, which was 238. There were employed in the coal mines of the State 21,388 men as against 20,555 men in 1906. During 1907 there were killed in the mines of the State 154 men as compared with 96 killed in 1906. In the production of coke Alabama ranks third in the number of States, being surpassed only by Pennsylvania and West Virginia. There were forty-three coke making establishments in 1907, an increase of one over 1906. The total production was 3,021,794 short tons, valued at \$9,216,194 as against 3,034,501 tons in 1906 valued at \$8,477,899. There were in the State two by-product recovery plants with 280 ovens, all of which were operated during 1907. Other important mineral productions of the State are clay products which were produced in 1907 to the value of \$1,754,409 as compared with \$1,668,899 in 1906, and gold, lime, limestone, and graphite. See COAL; GOLD; PIG-IRON; IRON; SILVER.

AGRICULTURE AND STOCK RAISING. The acreage and production of principal crops in the State in 1908, according to figures of the United States Department of Agriculture were as follows: excepting cotton: Corn, 44,835,000 bushels, from 3,050,000 acres, valued at \$37,213,000; winter wheat, 1,092,000 bushels, valued at \$1,168,000, from 95,000 acres; oats, 4,230,000 bushels, valued at \$2,792,000 from 235,000

acres; rye, 20,000 bushels, valued at \$25,000 from 2000 acres; rice, 63,000 bushels, valued at \$50,400 from 1400 acres; potatoes, 1,275,000 bushels, valued at \$1,211,000 from 15,000 acres; hay, 176,000 tons, valued at \$2,200,000 from 110,000 acres; tobacco, 283,500 pounds, valued at \$73,710 from 630 acres. The most notable feature in the agricultural development of Alabama in the last few years is the increase in the production of corn, which in 1900 amounted to 29,300,000 bushels. Cotton is the chief agricultural product of the State. The cotton crop in 1908 was estimated at 1,273,000 bales as compared with 1,216,000 bales in 1907. Since 1903 the value of the crop has greatly exceeded that of the years previous.

The number of farm animals in the State has increased notably from 1900 to the close of 1908. At the end of the latter year the numbers were as follows: horses, 168,000; mules, 248,000; milch cows, 289,000; other cattle, 544,000; sheep, 184,000; swine, 1,238,000. The number of mules, milch cows and other cattle has markedly increased in the last few years. The estimated value of the wool clip in 1908 was \$136,500.

MANUFACTURES. Alabama made considerable progress in manufactures between the two censuses of 1900 and 1905. A comparison of eleven selected industries showed that they reported 1403 establishments, 45,248 wage-earners and products valued at \$60,459,793 in 1900, while in 1905 they reported 1,312 establishments, 54,073 wage-earners, and products valued at \$93,953,829. There was a small decrease in the number of establishments, but an increase of 19.5 per cent. in the number of wage-earners, and of 55.4 per cent. in the value of products. The value of products of the seven leading industries in 1905, with the per cent. of increase since 1900, were: iron and steel, \$24,687,359 (42 per cent.); cotton goods, \$16,760,332 (105 per cent.); lumber and timber products, \$15,939,814 (175 per cent.); foundry and machine shop products, \$9,122,874 (65 per cent.); railroad shop work, \$6,681,074 (60 per cent.); coke, \$6,175,126 (66 per cent.); and cottonseed oil and cake, \$5,769,061 (93 per cent.). The rapidly growing importance of Alabama as a manufacturing State is due mainly to two groups of industries, namely, cotton products and iron and steel with allied products. The value of the cotton manufactures more than doubled from 1900 to 1905. The number of active spindles increased from 772,727 in 1905 to 939,942 in 1908, Alabama ranking fourth among cotton growing States.

EDUCATION. In 1906, the nearest year for which statistics are available, the school population was 697,465, of whom 57 per cent. were white and 43 per cent. colored. The enrollment of white pupils was 230,005 and of colored 146,101. The teachers numbered 5966, of whom 4412 were white and 1554 colored. The average monthly salary of white teachers was \$41.73 and of colored, \$24.04. A law passed in 1907 provided for a high school in every county, and carried with it an annual State appropriation of \$200,000 to aid in paying the salaries of teachers in high schools established under it. The State has made important progress in educational advancement in recent years.

FINANCE. According to the report of the State Treasurer a balance remained in the Treasury on December 30, 1907 of \$1,819,736.80. The receipts from October 1, 1907, to September

30, 1908, were \$4,661,902.35 and the disbursements for the same period were \$5,120,805.53, leaving a balance in the treasury on Sept. 30, 1908, of \$1,360,833.62. Of the receipts, there were received from State tax in 1907, \$1,044,695.99; from the special school tax of 1907, \$1,282,366.66; from the Insurance Department, \$188,051.47; from the convict funds, \$891,512.87. For educational purposes there were disbursed \$1,669,156.61.

CHARITIES AND CORRECTIONS. The State charitable and correctional institutions include the Alabama Insane Hospitals at Tuscaloosa; Alabama Schools for the Deaf, Dumb and Blind at Talladega; Alabama Boys' Industrial School at East Lake, which is a reform school for white boys. The Bryce Hospital for Insane White at Tuscaloosa and the Mount Vernon Hospital at Mount Vernon, for Insane Negroes, are under the control of a Board of seven Trustees. In both institutions there were in 1908 1727 patients, 1129 being whites and 598 negroes. The State appropriates \$3.65 per capita a week for the maintenance and improvement of these institutions. For the Alabama School for the Deaf was expended in 1908, \$37,605, and for the building fund of the same institution, \$15,960; for the School for the Blind was expended \$20,240 and for the School for the Negro Deaf and Blind, \$11,500.

POLITICS AND GOVERNMENT. There was no session of the State legislature in Alabama in 1908. The year was notable for the gradual elimination of the legalized liquor traffic through the operation of the county local option law passed overwhelmingly by the legislature of the previous year. In addition to the county local option law the legislature provided for statutory state-wide prohibition, to become effective Jan. 1, 1909. A number of the larger counties, including Jefferson in which Birmingham is located, became "dry" Jan. 1, 1908, under local option. By the provisions of the statutory act all breweries and distilleries ceased operations July 1, 1908. Fifty counties of Alabama were dry on Jan. 1, many of them after bitterly contested elections. Attempts were at once made on the part of those interested in the sale of liquor to have the law declared unconstitutional and the Probate Judge of Cullman County issued nine saloon licenses for saloons in that county. The county voted on Dec. 8, 1907, for prohibition and the saloon men claimed that the local option law was unconstitutional because it was a local and not a general law, inasmuch as it made exception of counties which voted on the proposition prior to Dec. 12. The Probate Judge of Lowndes County refused to issue licenses, and application was made for a mandamus to compel him to take such action. On April 19 the Supreme Court of the State rejected the contentions made against the State local option Law and the Nine o'Clock Closing Law and held that these two laws were constitutional. There was no dissenting opinion. On April 21, a Federal Judge enjoined operation of the railroad rate laws passed by the legislature of 1907.

A serious strike took place at Birmingham in July and the miners resorted to such violence that three companies of State militia were ordered to Birmingham on July 17. Soon afterward an entire regiment was stationed in the various mining camps. A fight took place on July 17 at Adamsville between the miners and the sheriff's deputies, when the train bearing

strike breakers was held up by the miners. One deputy was killed and many strikers and sympathizers were wounded. On July 29 a non-union miner at the Pratt mines in Birmingham was attacked by striking miners and was killed. Two union miners were seriously wounded. On August 9th, 3 men were instantly killed and 11 injured when striking miners fired into a passenger train on the Birmingham Mineral Railroad at Blocton. Governor Comer at once ordered a company of militia to this place. For a discussion of the causes of these strikes, see article STRIKES.

CONVENTIONS AND ELECTIONS. The Republican party of Alabama was divided by party dissensions into two factions in 1908. The so-called "Davidson faction" held its convention at Birmingham on April 29 and chose four delegates to the National Convention. No instructions were given as to the candidate for whom these delegates should vote. Nominations for State officers were made and a new State Committee was chosen. Resolutions in regard to national affairs and the race question were avoided. The so-called "Thompson" or Administration faction held its convention at Birmingham on May 6. Resolutions were adopted endorsing President Roosevelt and J. O. Thompson and instructing the delegates for Secretary Taft. At the Democratic State primaries held on May 18th, the majority for William J. Bryan over Governor Johnson of Minnesota for endorsement for the presidency, was very large—about 25,000. Mr. Bryan therefore received the vote of the State delegation. Delegates to the National Convention were named by State primary. In the election of Nov. 3 the State vote was as follows: Bryan, 74,374; Taft, 25,305; Watson, 1565; Debs, 1347.

OTHER STATE EVENTS. On April 24, a tornado swept over the northern part of the State and two towns, Bergen, Walker County, and Albertville, Marshall County, were badly wrecked. Four persons were killed outright at Bergen and 50 were hurt. At Albertville 12 were killed and 75 injured. The total dead in the vicinity of Albertville was 26 and the total injured 165. Several were killed or injured in Blount County and there were four or five fatalities in DeKalb County. On Jan. 10, 7 persons were killed and 12 others injured when a freight train ran into a passenger train on the Alabama and Mississippi Railroad near Vinegar Bend.

LEGISLATION. Among the important measures passed by the legislative session of 1907-1908 are the following: An act was passed permitting graduates of the Law Department of the University of Alabama, upon presentation of their diplomas, and the payment of license fees, and proof of good moral character, to practise in all the courts of the State. Provision was made for a State Commission of Forestry, which shall publish annually a report upon the forest conditions of the State with reference to the preservation of forests. This Commission is to report to each session of the legislature as to the results of their investigations. The legislation bearing upon the question of the liquor traffic is noted above. Acts were passed regulating the practice of pharmacy and the sale of poisons in cities and towns of more than 900 inhabitants. The legislature also provided for the establishment of an epileptic colony. Several measures were passed affecting rail-

roads, but nothing of the importance of the legislation that was enacted in 1907, in which year Alabama probably passed more legislation affecting railroads than any other State in the same period.

STATE OFFICERS. Governor, B. B. Comer; Lieutenant-Governor, Henry B. Gray; Secretary of State, Frank N. Julian; Auditor, W. W. Brandon; Adjutant-General, Bibb Graves; Attorney-General, A. M. Garber; Treasurer, W. D. Seed; Superintendent of Education, H. C. Gunnells; Commissioner of Agriculture, J. A. Wilkinson; ex-officio Commissioner of Insurance, A. C. Sexton; Commissioner of Public Lands, Frank N. Julian—all Democrats.

JUDICIARY. Supreme Court; Chief Justice, John R. Tyson; Associate Justices, Jonathan Haralson, N. D. Denson, John C. Anderson, R. T. Simpson, James R. Dowdell, and Thomas McClellan; Clerk, R. F. Ligon, Jr.—all Democrats.

The Legislature of 1908 was composed of 35 Democrats in the Senate, and 104 Democrats, one Populist and one Republican in the House. The representatives in Congress will be found under *Congress* in the article UNITED STATES.

ALASKA. A territory of the United States, whose government is as yet unorganized, situated at the northeastern extremity of North America. The total area, according to the revised survey of 1906 is 586,400 square miles. The population, according to the best data available, was in 1908 about 31,000, distributed as follows: First Judicial Division, 9,000; Second Judicial Division, with Nome as its centre of population, 10,000; Third Judicial Division, with Fairbanks and Valdez as centres of population, 12,000. This is a liberal estimate of the permanent white population of Alaska, but does not include some six or seven thousand people of mixed nationalities, who are employed in the mines, canneries, and in railroad construction during the summer, and who leave at the close of the season of activity. The population of Alaska is engaged almost entirely in mining and railroad construction and occupations incident thereto. Near the settlements a few people are engaged in the cultivation of the soil, mainly in truck farming. The native population is approximately 35,000.

AGRICULTURE. During 1908 an agent of the Department of Agriculture conducted experiment stations with satisfactory results and established a new station near Fairbanks, where there are large areas of rolling ground. A few attempts at extensive agriculture or stock raising are made in the territory. A great variety of vegetables and plants are being cultivated with success at Manly Hot Springs near Tanana and at the Hot Springs near Nome. In 1907 the government began experimenting with Galloway cattle on Kodiak Island, and in 1908 it was reported that these experiments were meeting with success. Sheep are being raised at the same place.

FISHERIES. The total pack of the salmon canneries for 1908 was about 2,000,000 cases of four dozen one pound cans. The price of red salmon during the year was such as to insure a good profit to the canneries on the year's pack of that kind of fish. The price of pink salmon, however, was so low as to leave little if any margin to the canneries whose pack is chiefly that species of fish. The mild curing of king salmon continued during the year in southeastern Alaska. The experiments of hatching salmon fry were carried on during the year under the direction

of the United States Fish Commissioner, and some of the canneries. The law provides a rebate on the tax on canned salmon to the canneries maintaining private hatcheries. Halibut fishing continued during the year, but suffered from the low price of that fish. A few vessels were engaged in catching cod, salting them and taking them to San Francisco and Seattle for final preparation for the market. A plant for extracting oil and making guano from whales was in successful operation at Tyee, Admiralty Island during the year. The value of the fish shipped from Alaska in 1908 was as follows: salmon, canned, \$8,125,951; all other fish, \$800,165.

FURS. The quantity and quality of furs shipped from Alaska was practically the same in the fiscal year 1908 as in 1907, but the value decreased, owing to the low price which prevailed after November, 1907. The value of the furs and fur skins shipped from Alaska in 1908 was \$463,108 as compared with a value of \$648,652 in 1907.

MINING. The total value of the mineral production of Alaska for the calendar year 1908 is estimated by the United States Geological Survey at \$19,600,000 as compared with \$20,870,771 in 1907. This decrease is to be charged to the gold placers and copper mines, as most of the other mining industries of the territory show an increase in value of output. The value of the total mineral production of Alaska from 1880, when mining first began, to the close of 1908 is, in round numbers, \$148,000,000. Of this amount the gold mines produced about \$142,000,000, the silver mines about \$1,150,000 and the copper mines, \$4,100,000. The balance represents the value of the marble, gypsum, tin and coal output. Metal mining in 1908 included the operating of gold placers and lodes, and copper lode mines, together with prospecting for tin and antimony deposits. The sources of the precious metals, according to the best data available, were as follows: Siliceous ores: gold, \$3,525,000; silver, \$20,000; Copper ores: gold, \$75,000; silver, \$25,000; copper, \$634,000; Placers: gold, \$15,000,000; silver, \$35,000. There were twelve gold and silver lode mines on a productive basis in 1908 as compared with 13 in 1907, and nine copper mines made some shipments of ore as compared with 13 in 1907. It is estimated that the copper production of Alaska in 1908 was about 4,800,00 pounds as compared with 6,308,786 pounds in 1907. Of the 1908 production, something over 1,000,000 pounds is to be credited to the Prince William Sound, and the rest to the Kasaan Peninsula and the copper mining districts of Prince William Island.

Coal exists in large quantities in Alaska, and extensive fields of high grade coal have been found in the Matanuska and Bering River valleys. Owing to the difficulty in obtaining titles to the coal lands, extensive development of these fields has not yet taken place, but Congress in the 60th session approved a law by which titles to coal lands can be quickly obtained. This should insure great development in the Bering River valley where transportation is probably assured. Gypsum and marble are produced and deposits of antimony, graphite, bismuth, cinnabar and talc have been found.

TRANSPORTATION. Improved transportation facilities are among the most urgent needs of the mining industry in Alaska. Much progress was

made during 1908 in the construction of roads and trails, but these can only supplement and cannot supplant railways. The inadequacy of the river transportation lines in seasons of low water was strongly emphasized during the year by conditions that prevailed in the Yukon in the summer season. Advancement of several railroads, among which were the railways of the Matanuska coal fields and to the inland copper fields from both Valdez and Katalla, which had been actively pushed during 1907, were greatly retarded during 1908 by the unfavorable financial conditions. Rapid progress was made, however, by the railway being built up Copper River from Cordova. This line was completed to Childs Glacier in September. In connection with this road, steamers are to be run from Abercrombie Rapids, so that during 1909 it will be possible to avoid the long overland journey from the coast to reach the Chitini Copper belt. Following is a table of mileage, compiled from the best available data and prepared for the United States Geological Survey.

Mileage and terminals of Alaska railways, December 4, 1908.

Seward Peninsula:	Miles.
Seward Peninsula Ry., Nome to Shelton.....	80
Paystreak to Branch S. P. Ry.	6.5
Council City and Solomon River R. R., Council to Penelope Creek	32.5
Wild Goose Ry., Council to Ophir Creek	5
Fairbanks:	
Tanana Valley R. R. Fairbanks and Chena to Chatanika	46
Kena Peninsula:	
Alaska Central R. R., Seward to near head of Turnagain Arm	53
Copper River:	
Copper River R. R., Cordova to Childs Glacier (Sept. 17)	47
(Probably 11 miles have been built since September 17. Same railroad at Katalla, where there has also been some work done by a rival company, has built between 3 and 4 miles. At Valdez a few miles of track of the Alaska Home Ry. were laid in 1907.)	
White Pass:	
White Pass and Yukon R. R., Skagway to White Pass	20.4
(Terminal at White Horse, Yukon Territory.)	
Yakutat Bay:	
Yakutat Southern Ry., Yakutat to Situk River..	9
Portions of the Council City and Solomon River and of the Alaska Central are out of repair and not in use.	

COMMERCE. There was a slight decrease in the commerce between the United States and Alaska during the fiscal year 1908, but it was not of such character, or so large in amount as to indicate any halt in the development of the territory. Labor troubles in the placer districts caused a decrease in the output of gold and the consequent decrease in the demand for merchandise, and the sudden fall in the price of copper resulted in a material decrease of the production of this metal and in the demand for merchandise by those engaged in the copper mining. The domestic merchandise shipped from the United States to Alaska in the fiscal year ended June 30, 1908 was valued at \$15,957,576, as compared with a value in 1907 of \$17,811,093. This merchandise was divided as follows: Coal, \$182,942; lumber, \$419,170; hardware and machinery, \$4,824,509; provisions, \$5,625,681; liquors, \$733,281; all other, \$4,171,993. The value of merchandise and precious metals shipped from Alaska to the United States in the same period was \$31,766,044 as compared with a value of \$37,537,676 in 1907. This merchandise was divided as follows: Salmon, canned, \$8,125,951; all other fish, \$800,165; copper ore,

\$474,172; whalebone, \$138,989; furs and fur skins, \$463,108; all other domestic merchandise, \$915,412; gold, \$17,490,777; silver, \$13,007. In addition foreign gold was shipped to the value of \$3,337,338, and foreign silver to the value of \$7,125.

EDUCATION. The people of Alaska show great interest and take great pride in the public schools, and gratifying results were shown during the year from their operation. The schools in the incorporated towns are supported largely by the license money collected in these towns, and are under the control of the school boards and town councils. During 1908 schools were successfully maintained at the following places: Chena, Douglas, Eagle, Fairbanks, Juneau, Ketchikan, Nome, Skagway, Treadwell, Valdez, and Wrangell. In the schools established in the province by the act of Congress of Jan. 27, 1905, there were 672 pupils. The cost of maintaining these schools during the year was \$38,116. The government schools for the education of natives are under the charge of the Bureau of Education, and during 1908 these schools were increased from 52 to 62. The number of pupils increased from 2443 to 3067. A determined effort is being made by this Bureau to increase the efficiency of the schools under its control, and make them extend their influence to the parents as well as to the children. The Bureau is engaged in a determined effort to reach the physical needs of the natives through the schools which they have established and maintain, and by the employment of physicians and nurses throughout the territory. The Presbyterians, Roman Catholics, Moravians, Methodists, Baptists, Episcopalians, Friends, the Swedish Evangelical and the Orthodox Greek Churches carry on educational work, and the influence of their schools and missions is very apparent among the natives.

INDIANS. The educational work among the Indians is indicated in the paragraph above. The general condition of the Coast Indians is reported by the government of Alaska to be improving. Their physical condition, however, is not improving. Constitutional diseases are prevalent among them, and unless strong measures are taken to minimize the effect of disease and to more carefully rear the young, it will be but a short time before the natives are practically gone. Congress at its last session, provided an appropriation of \$6,000 to be used in the detection and prosecution of people engaged in selling liquor to Indians.

CABLES AND TELEGRAPHS. Excellent service is rendered to the people of Alaska by the military cable and telegraph. The cable is being extended to Cordova, the terminus of the Copper River and Northwestern Railway. Experiments for the establishment of wireless stations, undertaken during the summer of 1907, were not entirely successful, but in Sept., 1908 a wireless station was established at Circle City by the United States Signal Corps, and some successful experiments were made in receiving and transmitting wireless messages.

PUBLIC LANDS. Numerous tracts of land have been taken up under the Homestead law, approved March 3, 1903, but no extensive development of homesteads is being made. In many instances, the land taken under this act is for timber, and in some instances, to obstruct rights of way of railroads under construction. The

total number of homesteads taken up at the end of the fiscal year 1908 was 439.

POLITICS AND GOVERNMENT. A bill providing for a fourth judicial division passed the House of Representatives during the first session of the 60th Congress. The creation of this division is urgently needed. The governor in his annual report, urges the enactment into a law of that portion of the bill which provides for the change in license for the sale of intoxicating liquor in Alaska in order that the sale of all liquor may be prevented. The growing importance of shipping to Alaska calls for the better lighting and surveying of the coast. The government recommends that more lights be established and a separate lighthouse district be created for Alaska with headquarters at a suitable point in the territory. He recommends also that the natives of Alaska be given the right to acquire public land and to hold and transmit property, and he urges the enactment of some form of compulsory education law in order to secure results commensurate with the expense of the maintenance of schools for native children. The Geological, and Coast and Geodetic Surveys continued their work in Alaska during the year. In the early part of the year serious strikes took place in the Treadwell mines, and Governor Hoggatt requested aid from the Federal Government in quelling the trouble.

OFFICERS: Governor, Wilfrid B. Hoggatt; Secretary to the Governor, William H. Loller; Ex-officio Secretary to Alaska, William L. Dustin; Delegate to Congress, Thomas Cale; Delegate Elect, James Wickersham. Judiciary: First Division, Russell A. Gunnison, Judge, C. C. Page, Clerk; Second Division, Alfred S. Moore, Judge, John H. Dunn, Clerk; Third Division, Silas H. Reid, Judge, Oscar A. Wells, Clerk. The Governor is ex-officio Superintendent of Public Instruction of schools outside incorporated towns for schols maintained for children of white and mixed blood.

ALASKA YUKON PACIFIC EXPOSITION. See EXPOSITIONS.

ALBERTA. A province of Canada. Area, 253,540 square miles; population (1906), 185,412. Edmonton, the capital, had 11,167 inhabitants in 1906. For details concerning population, education, production, etc., see CANADA. The provincial government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada and acting through a responsible ministry, or Executive Council, and a unicameral Legislative Assembly consisting of twenty-five members. The present Lieutenant-Governor is George H. V. Bulyea, appointed September 1, 1905. The Premier in 1908 was A. C. Rutherford.

HISTORY. The chief feature of progress during the year was the carrying into effect of a vigorous policy of railway extension, which the provincial government has assisted. With that end in view a Department of Railways was added to the government. A new license law, which was put in force on May 1, so reduced the receipts of hotels that the price of intoxicating liquors was nearly doubled and the hotel keepers sought remedial legislation. There was also considerable agitation in favor of state-owned railways, and state-ownership of interior grain elevators. The agitation for state-owned railways was based on the argument that, as under the constitution of Alberta the federal government

retained control of the provincial lands, it should build the new railways.

ALBERTI, PETER A., Former Danish Minister of Justice, who while holding that office is said to have made away with about \$5,000,000 of the funds of companies in which he was interested. He was born on the Island of Zealand, was educated at the University of Copenhagen, was called to the bar at the age of twenty-one and was admitted to the Supreme Court at the age of twenty-five. Ten years afterward he became manager of the Zealand Peasants' Savings Bank, and subsequently he established the Zealand Fire Insurance Company, and the Danish Farmers' Syndicate, all of which institutions he conducted at first with signal ability. He was elected to the Danish Parliament at the age of forty, became a conspicuous member of the Radical party, and was made Minister of Justice in the first Liberal Ministry formed in Denmark. This position he used to advance his own commercial interests while ostensibly developing the companies of which he was the controlling director. This involved the falsification of books, and a series of colossal peculations. In one instance he borrowed from the government for the Zealand Savings Bank \$500,000 all of which he is believed to have appropriated to his own uses. He resigned from the cabinet in July, 1908, avowedly in order to devote all of his time to his business enterprises, but on September 8, was arrested on a charge of forgery. See DENMARK.

ALCOHOL. The question as to the harmfulness of moderate amounts of alcohol was debated with considerable fervor during 1908. The influence of alcohol in the military service was investigated by Lt. Colonel Davies of the British Army. His conclusion is that, in the ordinary healthy man, alcohol is unnecessary under any circumstances that may arise in military service, even those conditions in which it is usually held to be desirable: *e. g.* after exposure to extremes of heat and cold, excessive bodily or mental labor, or the fatigues incident to active service. Davies next considered whether alcoholic beverages in moderate amounts as used by ordinary healthy men are harmful or the reverse, and whether their use should be encouraged, prohibited, regulated or let alone. In this connection he adduces statistics referring to the comparative healthiness of abstainers and non-abstainers obtained from these two classes of membership in the United Kingdom Temperance and General Provident Institution for sixty years. These figures go to show that even moderate quantities of alcohol such as would naturally be used by those insured in this society tend to diminish the expectation of life. Becker conducted researches among persons habituated to constant moderate amounts of alcohol daily. He could not obtain these conditions in the young, and therefore restricted his inquiry to persons 90 years old or over. The sexes were about equally divided, and the cases were from all ranks of society. The average consumption of alcohol was about one-half ounce daily per capita among these selected individuals all of whom were hale and hearty for their time of life. Becker therefore accepts this as the maximal safe daily dose. This may be compared with the opinions of 40 years ago, exemplified in Anstie's rule concerning the use of alcohol, first enunciated by Dr. Francis Ed-

mund Anstic, a London physician, in a monograph, *The Uses of Wine in Health and Disease*, published in 1870. Briefly it is to the effect that the maximum amount of absolute alcohol which can be taken by an adult without injury is one and a half ounces daily. This is equivalent to about three ounces of whiskey, brandy, gin or rum, about four wineglassfuls of sherry or other heavy wine, to one pint of claret, champagne or other light wine, to three glasses of strong ale or porter, or five glasses of beer or light ale. The mortality from alcohol in the Paris hospitals and asylums has been the subject of investigation by C. Fernet for several years. He finds that in insane asylums alcohol was directly or indirectly responsible for about half and in the general hospitals for about a third of the deaths.

It is stated by Ferris of the New York State Commission in Lunacy that of the ascertainable causes of the 6200 new cases of insanity annually admitted into the New York State Hospitals, the use of alcoholic beverages was the direct cause of the lunacy in 19.8 per cent., and a known contributing cause in 4.7 per cent. additional; total, 24.5 per cent.

Copp of Massachusetts ascribes alcoholic intemperance as the cause of 16.65 per cent. of 1676 new admissions of insane patients, and states that it was the predisposing cause in 5.35 per cent. additional, or 22 per cent. in all.

ALDEN, WILLIAM LIVINGSTON. An American author and journalist, died in Buffalo, N. Y., on January 14, 1908. He was born in Williamstown, Mass., on October 9, 1837, a lineal descendant of John and Priscilla Alden; graduated at Jefferson College in 1858, was admitted to the New York bar in 1860, and practiced until 1865. In the latter year he joined the staff of the *New York Times* for which, and for the *New York World*, *Graphic* and other papers, he wrote editorials until 1885. In 1885-89 he was United States Consul General at Rome, where he received from King Humbert the decoration of Knight of the Crown of Italy. He was on the staff of the Paris edition of the *New York Herald* in 1890-93, after which, until shortly before his death, he lived in London, where he was literary correspondent of the *New York Times*, and was well known. His many books, some of which were quite popular, include: *Domestic Explosions* (1878); *Shooting Stars* (1879); *Cruise of the Canoe Club* (1883); *The Mystery of Elias G. Roebuck* (1896); *His Daughter* (1897); *Dreobitt's Dream* (1902); *New Robinson Crusoe* (1903); *Cat's Tales* (1905), and *Jimmy Brown Trying to Find Europe* (1905).

ALDRICH, NELSON WILMARTH. An American legislator, United States Senator (Republican), from Rhode Island. He was born at Foster, R. I., on November 6, 1841, was educated in the public schools and at the East Greenwich Academy and became engaged in wholesale business. From 1871 to 1873 he was president of the Providence Common Council, and in 1875 and 1876 represented his district in the lower house of the State legislature, having been chosen speaker in the last-named year. In 1878 he was elected representative to Congress, and he served in that body until 1881, when he resigned to become United States Senator. He has since served continuously in the Senate, having been reelected for the fourth

time in 1904. Senator Aldrich is the Republican leader of the Senate and has for several years been chairman of the Committee on Finance. In January, 1908, he introduced the currency bill, which, in its compromise form and known as the Aldrich-Vreeland bill, was approved on May 30, 1908. See UNITED STATES, section on Congress; CURRENCY.

ALEXIS, ALEXANDROVITCH. A Russian Grand Duke and the fourth son of Alexander II., died in Paris, on November 14, 1908. He was born on January 14, 1850. As Grand Admiral of the Russian fleet, he took an active part in the reorganization of the navy during Alexander's reign, and had much to do with the buying of ships for the volunteer fleet. For the disastrous defeat of the Russian fleet in the Battle of the Sea of Japan, he was held partly accountable, with the result that he asked to be relieved of his command, and soon afterward made his permanent home in Paris. The Grand Duke visited the United States in 1872, and was very cordially received.

ALFALFA. In the production of the total hay yield for 1908 alfalfa, especially in the Western States where it did unusually well, proved a very important factor. The average yield of alfalfa hay was estimated at 2.5 tons per acre, and according to the United States Department of Agriculture, the yield of 1908 represented 90.7% of a full crop as compared with 89.8% of a full crop in 1907. It was believed that the acreage of alfalfa has more than doubled during the past 10 years and that in 1908 over 4,000,000 acres were devoted to this crop. In Kansas alone the increase in acreage since 1899 was estimated as 500,000 acres and that over 700,000 acres were now grown within the state.

In various sections the hay grasses such as timothy suffered much from drouth but the alfalfa crop owing to its deeper growing root system was better able to cope with these conditions and consequently the reduction in yield was not so marked. Alfalfa was fast making its way into Eastern and Southern sections. Farmers and feeders everywhere were beginning to realize its value on account of the good prices secured for hay generally and because of the need of feeds richer in protein than hay made from the grasses or corn fodder and other forms of roughage. In protein production alfalfa leads most hay crops, even the cowpea and red clover, although here the difference is not so great as when compared with the grasses. On a protein basis alfalfa hay is worth about three times as much as prairie hay and from six to eight times as much as timothy hay. The Colorado experiment station determined that alfalfa produced approximately 2000 pounds of digestible dry matter, 900 pounds of digestible protein, and 925 pounds of digestible starch and sugar more per acre than corn. While alfalfa is recognized as an important land improver, it is also true that it uses large quantities of potash which sooner or later must be replaced. Investigators determined that an acre crop removed from the soil about 200 pounds of potash, 60 pounds of phosphates, and 90 pounds of lime and this fact accounted for the beneficial effects generally when these substances are applied to the crop. The difficulties in obtaining a stand of alfalfa are overcome in the same measure as farmers realize the necessity of soil inocula-

tion and thorough soil preparation. The seed bed for alfalfa cannot be prepared too well. It was reported from the State of Washington that the practice of sowing from 10 to 15 pounds of orchard grass seed with 10 pounds of alfalfa seed has been found to give excellent pasture and to prevent bloat in the grazing animals. To grow crops together with alfalfa on the same ground, however, is not always desirable. The Arizona Experiment Station in some of its recent work found that nurse crops of rye, wheat, barley and oats all retarded the development of the roots as well as the stems of the alfalfa plants. Progress in securing pure seed was made during the year by the Experiment Station at Geneva, N. Y., which worked out a method of screening alfalfa seed to free it from fodder seeds, and the United States Department of Agriculture perfected a method of removing buckhorn seed from alfalfa seed. The experiment stations also inaugurated work in breeding alfalfa for either seed or forage production.

ALGERIA. A French colony in North Africa, consisting of Algeria proper and the Southern Territory, the latter having been formed out of portions of Algeria and the Sahara. Algeria proper has an area of 77,208 square miles and a population (1906) of 4,785,759, including 718,984 Europeans. The Southern Territory has an area of 316,629 square miles and (1906) 446,091 inhabitants, including 10,976 Europeans. The natives are all Mohammedans. The Jews, numbering 57,132 in 1901, are French citizens. The principal towns, with their populations in 1906, are as follows (the communal populations being indicated in parentheses): Algiers, the capital and chief seaport, 138,240 (154,049); Oran, 100,499 (106,517); Constantine, 46,806 (58,435); Bone, 36,004 (42,934); Sidi-bel-Abbes, 24,494 (29,088); Tlemcen, 24,060 (39,757); Mostaganem, 19,528 (22,011).

PRODUCTION. In 1907 the area under wheat was 3,257,377 acres (1908: 3,387,858), and its production, 31,260,809 bushels; barley, 3,168,555 acres (1908: 3,208,275) and 41,543,231 bushels; oats, 340,658 acres (1908: 334,768) and 10,651,274 bushels. Other important crops are maize, (1906: 400,000 bushels) beans, and dari. The production of olive oil in 1906-7 was 10,400 metric tons; of wine in 1907, 227,072,400 gallons. In 1907 experiments in cotton cultivation were continued under the auspices of the Colonial Cotton Association; the production was 35,053 pounds, against 3,832 in 1906. Tobacco is cultivated, as well as peas, potatoes, artichokes, tomatoes etc. There are numerous fig, date, orange, lemon, mandarine, and almond trees. The soap tree is successfully cultivated. The forests contain numerous cork trees. In 1905 there were 1,066,404 cattle, 221,140 horses, 174,234 mules, 277,523 asses, 199,715 camels, 9,062,636 sheep, 4,030,208 goats, and 91,267 pigs. The fisheries yield tunny-fish, sardines, anchovies, sprats, shell-fish, etc. In 1908 rich banks of coral were discovered at Mansouriah and Azianra, at a depth of 150 feet. About 218 pounds of coral were collected, and the search for it was to be undertaken on a large scale. In 1906 there were worked 44 mines for iron, zinc, silver, lead, mercury, copper, antimony, and coal, the total output being valued at 20,257,147 francs. The phosphate deposits yield about 6,500,000 francs worth annually. Petro-

leum has been found in the department of Oran, and lignite deposits several feet thick were found in 1908 in the Souk-Ahras district, at Oued-Mouyras.

COMMERCE AND COMMUNICATIONS. In 1906 imports and exports (special trade) amounted to 401,652,000 and 280,295,000 francs respectively, against 383,900,000 and 228,800,000 respectively in 1905. In the general commerce of 1907 imports were valued at 461,000,000 and exports at 359,000,000 francs. The principal imports are textiles, clothing, leather goods, metal goods, machinery, casks, butter, cheese, sugar, coffee, and timber. The principal exports in 1906, in francs, were: Wine, 51,486,000; cereals, 47,158,000; living animals, 28,179,000; wool, 18,286,000; cork, 15,594,000; hides and skins, 11,212,000; zinc, 11,157,000; fruits, 10,666,000; iron ore, 9,518,000; phosphates, 9,053,000; olive oil, 7,484,000; alfa, 7,297,000; tobacco, 6,645,000, besides vegetable hair, legumes, fish, potatoes, lead, tanning bark, etc. The imports from France amounted to 340,341,000 francs in 1906 and 392,700,000 in 1907; exports to France, 202,353,000 in 1906 and 290,600,000 in 1907. The other leading countries in the foreign trade are Belgium, Germany, Great Britain, Spain, Italy, Brazil, and French colonies. The tonnage entered in 1906 was 3,956,291 (2,231,299 French) and cleared, 4,038,616 (2,295,154 French). The merchant marine at the beginning of 1907 consisted of 804 vessels of 10,134 tons. The length of railway on Dec. 31, 1906, was 1968 miles; of telegraph lines, 8920 miles. The railways receive an annual subvention amounting to between 14,000,000 and 15,000,000 francs.

GOVERNMENT AND FINANCE. The whole of Algeria is under a Governor-General, but its two divisions have separate administrations and budgets. A part of the Southern Territory is still under military rule. The laws for Algeria are made by the French National Assembly, in which each of the three departments (Algiers, Oran, and Constantine) of Algeria proper is represented by one senator and two deputies.

The budget is prepared by the Governor-General with the advice and consent of the Superior Council, composed of high officials and delegates from the departmental councils, and the three delegations, representing respectively the natives, the French colonists, and the French taxpayers other than colonists. The budget for 1908 estimated the revenue and expenditure of Algeria proper at 108,592,201 and 99,090,203 francs respectively; of the Southern Territory, at 3,345,745 and 3,243,665. The debt stood at the end of 1905 at 168,559,719 francs. The cost of the army, which numbers over 56,000, is borne by the French budget. The Governor-General in 1908 was M. Jonnart.

HISTORY. By the law of Feb. 28, 1908, the French Parliament authorized Algeria to contract a loan of 175,000,000 francs, a great part of which was to be devoted to public works. In so doing, the Chamber expressed its desire that the Algerian budget should provide the necessary funds for schools, and that schools should be established sufficient for the teaching of 120,000 children. This aroused some criticism in the colony, as an interference in native affairs. Moreover, the opinion of the colonists was not in favor of increasing schools, but rather in favor of closing some that now exist. Owing to the concili-

atory attitude of the Financial Delegations, and the moral influence of the Governor-General, the matter was satisfactorily settled, the Delegations agreeing to set apart for this purpose 520,000 francs each year for ten years. It was urged by the colonists against this policy of extending the school system among the natives, that it might lead to the forming of a half-educated, discontented class who would turn their instruction to account against their rulers, and on this point, the educated natives of British India were cited as a warning. Then it was said that the policy would tend to withdraw the mass of people from their old influences, without fitting them for the new, detach them from the soil, and deprive them of their taste for work. The educational programme tried to avoid these dangers by offering as practical an education as possible, having in view the fitting of pupils for certain trades or professions. It required, however, the teaching of French in the primary schools, and this was criticised as unlikely to lead to any real knowledge of the language and as tending to confuse the minds of the children and waste their time.

THE OUEENZA AFFAIR. A question of importance as to the economic future of Algeria arose from some mining concessions at Ouenza in the province of Constantine near the border of Tunis, and about 135 miles from the port of Bône. Several years before, a deposit of iron had been discovered, whose yield, according to experts, promised to be one of the richest in the world. Its working would, in their opinion, tend to break the practical monopoly which was held by the Swedish mines. Through an error, the government had granted two concessions, one for surface mining and the other for mining proper, and as a result, litigation ensued for several years between the concessionaries, thus preventing any exploitation of the mines. Finally, the concessionary company to which the rights of mining underground had been given, agreed to complete, at its own expense, a railway connecting the mine with the port of Bône, from which the ore would be shipped. By accepting this offer, the government would obtain, without expense, a railroad valued at 14,000,000 francs, to say nothing of the opening of a new region, the increased commerce of Bône, the impetus that the new line would give to trade and to the demand for labor, and the annual income of a million francs as rent for the line. M. Jonnart, the Governor-General, succeeded in effecting an arrangement between the contesting concessionaries and only the consent of Parliament was now necessary for its conclusion. This, however, was opposed, the chief speakers against it being the Socialists, MM. Zévaès and Jaurès. The main argument that they employed was the danger of permitting foreign capital to exploit the mine. In the group of capitalists interested in the project, there were Belgians, Germans, Italians and English, as well as French. The Socialist opponents of the measure dwelt at length on the dangers of international capitalism. Its defenders urged the fact that the council in control of the company would contain a majority of Frenchmen, and emphasized the great advantage that the working of the mines would have for Algeria in particular, and for iron manufacturers in general by breaking the Swedish monopoly. The arguments against the measure

prevailed, however, and the consent of Parliament was withheld.

BORDER FIGHTING. The conflict between the French and Mulai Hafid in Morocco (q. v.) affected the situation on the Algerian border. Moorish emissaries stirred up some unrest among the South Algerian tribes while an invasion by Moorish tribesmen on the north-western frontier in the summer led to a sharp battle with French troops, in which the invaders were routed with heavy loss but not before they had seriously threatened the French position for a time. In December there was a short mutiny among the soldiers of the Foreign Legion which the French were inclined to attribute to German machinations. On the whole, however, the government's confidence in the loyalty of the Algerian natives has remained unshaken. This was shown in the spring of 1908, when a plan was brought forward for withdrawing the greater part of the French army of occupation from the country, its place to be taken by two or three army corps raised among the natives and made liable for service in Europe in case of necessity.

ALI MIRZA. Shah of Persia. See PERSIA.

ALLEN, ALEXANDER VIETS GRISWOLD. An American Episcopalian minister and theological writer, died on July 1, 1908. He was born in Otis, Mass., on May 4, 1841. He graduated at Kenyon College in 1862, and at Andover Theological Seminary in 1865, when he was ordained as priest in the Protestant Episcopal Church and installed as rector of St. John's Church, in Lawrence, Mass. In 1867 he was appointed professor of church history at the Episcopal Theological School, Cambridge, Mass. He occupied this chair for the remainder of his life. He wrote numerous theological and biographical works, including a *Life of Jonathan Edwards* (1889); *Religious Progress* (1894); and *Life and Letters of Phillips Brooks* (2 vol., 1901). His last book, *Freedom in the Church*, (1907), was written in defense of his friend Dr. Algernon S. Crapey.

ALLISON, WILLIAM BOYD. United States Senator from Iowa, who had the remarkable record of having been a member of Congress for forty-three years, and for several years "father of the Senate," of which he had been a member since 1873, died at his home in Dubuque, Iowa, on August 4, 1908. He was born in Perry Township, Wayne County, Ohio, the son of a farmer; attended the district school, and a private school in Wooster, Ohio, and then studied for a year at Allegheny College, Meadville, Pa., and for another year at the Western Reserve University. He then studied law, in Wooster, and in 1851 was admitted to the bar in Ashland, where he practiced for several years. He was a delegate to the Republican State convention which nominated Salmon P. Chase for governor of Ohio in 1856, and supported John C. Frémont in the presidential campaign that year. In 1857 he established himself in Dubuque, where he became a member of a law firm; in 1859 he was a member of the Republican State convention and voted for the nomination of Samuel J. Kirkwood. As assistant secretary of the Chicago convention of 1860, he called the roll of States when Lincoln was nominated for president. At the beginning of the Civil War, he became a member of Governor

Kirkwood's staff, and rendered very valuable services in enlisting and equipping Iowa volunteers. Mr Allison was elected a representative from Iowa in the Thirty-eighth Congress, took his seat on December 7, 1863, and served four successive terms—until March 3, 1871. During this period he formed lasting personal friendships with James G. Blaine and James A. Garfield. During his second term, as a member of the Committee on Ways and Means, he began his study of national financial policies, which he continued during the remainder of his career. At the end of his fourth term in the House he declined a renomination, but on December, 1873 he took his seat in the United States Senate, a post which he continued to hold during the remainder of his life. By the primaries of June, 1908, he had been renominated, and if he had been reelected and had completed his term, his period of continuous service would have been longer than that of any other senator, since the establishment of the national government.

An exceedingly cautious, painstaking and thorough man, Senator Allison either initiated, or had an important part in shaping most of the financial legislation during his long service in Congress. He had been a member of the Senate Committee on Finance for thirty years, and chairman of the Committee on Appropriations for twenty-five years. He was on the special committee which drew up the bill for the resumption of specie payments in 1875. In 1878, after the Bland bill had passed the House by more than two-thirds majority, he brought about its emasculation in the Senate by means of an amendment (afterward concurred in by the House), substituting for the free coinage of silver at the ratio of 16 to 1 the provision that the Government should buy bullion at its market price, coin it into dollars and use these dollars in the payment of the national debt, or in the buying of more bullion. Another clause of this amendment authorized the President to call an international monetary conference—the Paris conference of 1878. Senator Allison was a member of the sub-committee which drew up the Senate amendments to the McKinley Tariff bill in 1890, and he introduced the amendment to the Civil Service Bill (1883) by which the independence of the Commission was insured. Of his service in the Senate, George F. Hoar, the distinguished Senator from Massachusetts, said: "During all that time he has done what no other man in the country, in my judgment, could have done so well. . . . He has controlled more than any other man, indeed more than any other ten men, the vast and constantly increasing public expenditure, now amounting to more than 1,000 millions annually. It has been an economical, honest and wise expenditure. He has been compelled in the discharge of his duties to understand the complications and mechanism of public administration and public expenditure. That is a knowledge in which nobody else in the Senate, except Senator Hale of Maine, and Senator Cockrell of Missouri, can compare with him. He has by his wise and moderate counsel drawn the fire from many a wild and dangerous scheme which menaced the public peace and safety." (Hoar, *Autobiography of Seventy Years*, New York, 1903.) As to the criticism of Senator Allison that he was "very careful not to offend anybody," and that he was "unwilling to take re-

sponsibility, or to commit himself," Senator Hoar remarked that if Allison's attitude were otherwise "he would find it very hard to maintain the personal influence necessary to success in the duties to which he is immediately devoted," Senator Allison's ingrained conservatism led him bitterly and persistently to oppose the Iowa "radical" Republican faction led in 1908 by Governor Albert B. Cummins (q. v.).

ALL RED ROUTE. See CANADA.

ALUMINUM. The year 1908 was important in the aluminum industry for the expiration of an agreement among the European producers, so that with large stocks on hand competition developed and the price fell to 13 1/2 and 14 cents a pound, with the result that in Europe aluminum could be purchased pound for pound at less cost than copper. This was significant in that for the first time aluminum, the world's production of which in 1907 amounted to 32,500 metric tons, became a commercial metal, subject to competitive manufacture and sale just as iron, copper, lead etc. In the United States the consumption of aluminum as reported by the U. S. Geological Survey during 1907 was 17,211,000 pounds, valued at \$4,926,948, as against 14,910,000 pounds, valued at \$4,262,286, in 1906. The change in European conditions during 1908 had its corresponding effect in America as aluminum is produced in the United States by a single producer which aided by a tariff duty of 8 cents per pound was able to maintain a price of 33 cents until Oct. 1. Successive reductions down to 24 cents were made, but foreign aluminum was in the market as low as 22 cents. In 1907 the price ranged from 36 cents in January to 38 cents in December reaching a maximum of 50 cents in April.

AMERICAN ASSOCIATIONS AND SOCIETIES. The associations and societies whose official titles begin with the word American will be found under the names of subjects in which such organizations are interested. For example, for the American Academy of Political and Social Science, see POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.

AMHERST COLLEGE, an institution of higher learning at Amherst, Mass., founded in 1821. In 1907-8 the attendance was 510, an increase of .35 over the previous year. At the beginning of 1908-9, it was 528, the largest registration in the history of the college. New biological and geological laboratories were brought nearly to completion in 1908 and will be occupied in 1909. The college will then have complete scientific equipment with extensive physical and chemical laboratories and a new observatory. Scholarships are awarded on the basis of academic standing. The productive funds in 1908 were \$2,000,000 and the income of the college is \$130,000. The faculty consists of 45 members. The President is Rev. Dr. George Harris.

AMICIS, EDMONDO DE. One of the most gifted and popular of contemporary Italian writers, died on March 11, 1908. He was born in Oneglia, Liguria, on October 21, 1846, graduated at the Military Academy at Modena in 1861, and served for several years in the Italian army, taking part in the battle of Custoza in 1866. He edited for a short time *L'Italia Militare*, at Florence, but upon the occupation of Rome by the Italian troops (1870), he retired from this position and from the army,

and thereafter devoted himself entirely to writing, his volume of military sketches, *Bozzetti della vita militare* (1868) having already proved very popular. He travelled in England, Holland, Spain, Africa, Turkey and South America, and his books wherein he describes these journeys, reveal not only keen observation but much kindly humor, a sympathetic view-point, broad tolerance, and a talent for vivid description. Such volumes include *Constantinople*, translated by Caroline Tilton (1878); *Studies in Paris*, translated by W. W. Cady (1879); *Spain and the Spaniards*, translated by W. W. Cady (1881); *Holland and Its People*, translated by Caroline Tilton (1881); and *Morocco and Its People*, translated by C. Rollin-Tilton (1882). He is best known, however, through a single book on child life, *Cuore, an Italian Schoolboy's Diary*, translated by Isabel F. Hapgood (1887-95), which was very widely read, and warmly praised not only in Europe but in America. On educational themes de Amicis wrote *La maestrina degli opera* (1895), and *Il romanzo d'un maestro* (1895), the last named suggesting his socialistic sympathies which become more and more strongly marked in his later works, notably in his pamphlet *Ai Nemici del Socialismo* (1896). His other works include the *Novelle* (1872); the historical tales, *Alle porte d'Italia* (1884); and *La carrozza di tutti* (1899); *Memorie* (1899); *Speranza e loria* (1900), and *Ricordi d'infanzia et di scuola* (1901.)

ANÆSTHESIA. SPINAL ANÆSTHESIA was frequently used in Europe in 1908. Though invented by Corning, of New York, American surgeons have never taken kindly to this method, which consists of injecting solutions of cocaine, storain, alypin or other derivatives of coca, into the spinal canal, after removing a corresponding amount of spinal fluid. The method was designed for operations on the lower part of the body, in patients unable to take a general anæsthetic. The results of several years' trial, however, seem to doom this procedure to ultimate abandonment, owing not only to the high percentage of evil after-effects, but also to the mortality, and to the added fact that in a considerable number of cases anæsthesia was not induced. The subject was reviewed at a meeting of the Paris Surgical Society in March. Besides a number of fatalities there were reported the following unfortunate by- and after-effects: Collapse, syncope, temporary paralysis of the lower extremities, oculo-motor paralysis, complete paralysis of arms, legs, and back of neck, pain and other sensory disturbances, loss of control over the bladder and the bowels. Death occurred in some patients from softening of the brain, as long as a year after operation. Other cases of death occurred from cerebrospinal meningitis. Headache, vomiting and other minor symptoms were present in at least twenty per cent. of the cases. Altogether the accumulated experience of several years will lead to careful selection of cases and the employment of the method only in hospitals where every safeguard against ill results is at hand.

SCOPOLMINE ANALGESIA. Scopolamine, an alkaloid of hyoscyamus, in combination with morphine, has had extensive use during 1908, for the easing of labor pains and as a preparation for general anæsthesia. The substance is injected hypodermatically. Testimony as to its value is conflicting. Certain writers report a high per-

centage of painless labors; in the experience of others the drug has often failed of the desired effect and produced undesirable sequale. Bertino of Florence reports 400 obstetric cases treated in Professor Resinelli's clinic. His conclusions are that the method is not without danger to the child, that the drug is unreliable, no action being obtained in thirty-six per cent. of the cases, and that although pains are lessened, regular uterine contractions were interfered with. In thirty-eight cases labor was suspended or retrogressed. In a considerable number of women labor was arrested for periods from a few hours to several days. Dangers to the infant were manifested during the first few hours after birth, by undue somnolence, torpidity, cyanosis, shallow respiration and asphyxia. Two fatalities in infants could be directly traced to scopolamine. It will be seen that the percentage of abnormal phenomena both in mother and child make the method undesirable. In seventy women visual disturbances, mental confusion, hallucinations and sub-delirium occurred.

LOCAL ANÆSTHESIA. A novel method of obtaining local anæsthesia by transfusion was practised by Bier. The technic is as follows: The blood is carefully expelled from the selected extremity by bandaging. Then above the operative field of operation. A subcutaneous vein is opened elastic band wound many times about the limb. A second elastic bandage is applied below the field of operation. A subcutaneous vein is opened and a weak solution of the anæsthetic injected. Anæsthesia follows in from two to fifteen minutes. This procedure is painless, and extensive operations upon the limbs, such as resection of joints and tendon transplantation, can be performed. The anæsthetic is confined to the operative area by suspension of the circulation.

ANAPHYLAXIS. See ANTITOXIN.

ANARCHY. The outbreaks of violence, including the murder of Father Leo Heinrich in Denver (see COLORADO); the attempted assassination of the Chief of Police of Chicago (see ILLINOIS), and the throwing of a bomb in New York, caused by avowed or suspected anarchists, inspired the government to resort to drastic measures for dealing with those who inspired such outrages. On March 3, Oscar S. Straus, Secretary of Commerce and Labor, issued a circular letter of instruction to the commissioners of immigration and immigrant inspectors in charge, directing them to inform police officials in their respective cities of the Federal laws relating to anarchists and persons of excluded classes, and to obtain the coöperation of these officials "in an effort to rid the country of alien anarchists and criminals." On March 23, the Postmaster General issued an order, excluding from the mails the Anarchist weekly paper, *La Questione Sociale*, published at Paterson, New Jersey. This action was taken at the direction of President Roosevelt in response to a letter sent by the Mayor of Paterson to the President, asking his aid in the effort being made to rid Paterson of anarchists, and especially calling his attention to this publication. This newspaper, it was alleged, advocated murder by dynamite and specifically urged the murder of enlisted men in the United States Army, officers of the police force, and the burning of houses of private citizens. On April 9, President Roosevelt sent a special message to Congress demanding new legislation on the subject

of anarchy. He urged further legislation by Congress in the matter of preventing periodicals which advocate violence from circulating in the mails. He said: "When compared to the suppression of anarchy, every other question sinks into insignificance. The anarchist is the enemy of humanity, the enemy of all mankind, and his is a deeper degree of criminality than any other. No emigrant is allowed to come to our shores, if he is an anarchist; and no paper, published here or abroad, should be permitted circulation in this country if it propagates anarchistic opinions." Measures were passed by Congress in line with the President's recommendation.

ANDREW AND PHILIP, BROTHERHOOD or. A religious organization, interdenominational in character, founded in 1888. Its members are included in twenty-four evangelical denominations in the United States as follows: The Reformed Church in America, the Reformed Church in the United States, Congregational, Presbyterian, Protestant Episcopal, Methodist Protestant, Baptist, Free Baptist, United Brethren, Lutheran Reformed Episcopal, Church of Christ, Aggressive Brethren, Friends, United Evangelical, Free and African Methodist Episcopal, and Evangelical Associations. It has branches in Australia, Japan, China, England, and Canada. Its object is the propagation of the gospel by the active support of its work. This organization since its foundation has 1100 chapters, enrolling 4500 men and 89 boys' chapters, with 1870 members. The President is Rev. Rufus W. Miller, D. D., and the General Secretary, Rev. William H. Pheley.

ANGLICAN CHURCH. The collective name given to that group of autonomous churches, which are in communion with or have sprung from the Church of England. They include the following: The Church of Ireland; the Episcopal Church of Scotland; the Protestant Episcopal Church of the United States of America; the Church of Canada; the Church of Australia; the Indian Church, and the Church of South Africa. In addition to these autonomous churches, there are in connection with the Anglican communion 28 missionary bishops representing the English Church in various remote regions of Asia, Africa, and America; 10 representing the Protestant Episcopal Church of America, the Reformed Episcopal Church of America and the Free Church of England, which are not recognized as authentic branches of the Anglican Church. See ENGLAND, CHURCH OF.

ANGOLA. A Portuguese colony in West Africa. Area (including Kabinda, to the north of the Congo), over 490,000 square miles; population, about 3,800,000. The principal towns are Loanda, the capital; Benguela, Novo Redondo, Ambriz, Kabinda, Mossamedes, and Port Alexander. The chief products are coffee, rubber, sugar, wax, vegetable oils, cocoanuts, ivory, cattle, and fish. The rubber supplies of the coast region are becoming exhausted, but immense rubber-producing areas exist inland, which await the development of means of transportation for their exploitation. The defective mode of preparation of Angola rubber caused its value in the European markets to drop to an alarming extent, and the question of proper preparation was being seriously considered by the Governor-General. Experiments were made on a government plantation, resulting in a small quantity of

rubber which obtained nearly twice the price previously paid. Para and Ceara rubber seeds were distributed to the local planters, with successful results. The export of rubber in 1905-6 was 1250 tons. Coffee production was declining, owing to low price, lack of labor, difficulty of transport, and the heavy export duty. The exportation of the produce of all fibre-producing plants was being encouraged by the government. A trial shipment of kapok was made to Great Britain. This fibre is abundant in various districts, but at present the scarcity of labor and the difficulty of preparation stand in the way of its immediate success as an export product. A few years before an attempt had been made to work up an export trade in the fibre of the baobab tree (*Adansonia*), which obtained a price of \$30 a ton in Europe, but the attempt failed owing to heavy steamer and railway charges and customs duties. The export of cotton was on the increase. The government supplied the planters with American and Egyptian seed, and issued from its press a Portuguese translation of the *A. B. C. of Cotton Growing*. The government also established an experimental station near the river Bengo, where experiments were being made in planting, ginning, and in the preparation of oil cake from the seed. The hut tax is payable by the natives in cotton. The principal cotton growing district is served by the railway, and the river Bengo is to be made navigable to the sea. The sugar industry was declining, owing to the prohibition of the sale of rum to the natives in accordance with the Brussels Liquor Convention of 1906. The planters used to make their chief profits from the preparation of rum. Some tobacco is grown and consumed locally. Petroleum and asphalt deposits are worked by a British company. Some gold has been found, and copper, iron, petroleum, salt, and malachite are reported to exist in large quantities. Textiles and coal are the principal imports, and coffee and rubber the principal exports. In 1907 the imports were valued at \$6,671,000, and the exports at \$4,322,000. The coasting and transit trade amounted to \$1,425,000. About half the imports are from Great Britain. The colony is visited by Portuguese, British, and German steamships. The length of railway in 1908 was over 390 miles. The railway from the port of Loanda to Ambaka, 226 miles, was being extended to Melange. Of the line from the port of Mossamedes to Chella, 42 miles were reported completed at the beginning of 1908. A line was being constructed from Lobito Bay, near Benguela, to the rich mineral field of Katanga, in the Congo Free State (q. v.). Its ultimate length is to be 1,200 miles, linking it with the railway system of the Transvaal, Orange River Colony, and Rhodesia. (See CONGO FREE STATE.) By Oct., 1908, rails were laid to Katengue, 76 miles from Lobito and across the dry zone, while grading at the end of 1907 was completed to 100 miles. After the dry zone had been crossed there was no difficulty in obtaining local labor, while contingents were also imported from Senegal, and over 2,000 Indian coolies from Natal. The 143 miles constituting the present contract was to have been completed by April, 1909. A lighthouse 575 feet from the end of Lobito Spit, near Lobito, was to have been completed by the end of May, 1908. The length of telegraph lines in the colony was about 1860 miles. The Governor-General resides at Loanda. The colony

is divided into six districts. The budget for 1907-8 estimated the revenue at 2,269,105 and the expenditure at 3,325,067 milreis (1 milreis = \$1.08.)

ANIMAL DISEASES. See **VETERINARY SCIENCE.**

ANKENY, DEVI. United States senator from Washington. He was born at St. Joseph, Mo., on Aug. 1, 1844. His parents went to Oregon in 1850, and he was educated in the public schools of Portland. He was chairman of the Pan-American Commission from Washington, and was an unsuccessful candidate for the United States Senate from that State in 1895 and 1899. In 1903, however, he was elected senator for the term ending in 1909. He was a candidate for re-election in 1908, the election being conducted under the direct primary law for the first time, but was defeated by Wesley L. Jones, after a bitter contest in which Senator Ankeny was charged by the leading newspapers with having bought his first election to the Senate. See **WASHINGTON; PRIMARIES, DIRECT.**

ANNAM. A French protectorate in Indo-China. Area, about 52,100 square miles; population (1906) \$5,565,597, including a few thousand Chinese and a few hundred Europeans. There are 420,000 Roman Catholics. Hué, the capital, has 50,000 inhabitants; Bin-Dinh, 73,306. The minerals include coal, of which some 25,000 tons are mined annually; iron, worked in primitive furnaces; copper, zinc, gold, and salt. The agricultural products are rice, maize, betel-nuts, sugar, coffee, tobacco, manoc, cinnamon, etc. Cotton of inferior quality is cultivated in the district of Than-Hoa, in the north. Some 700,000 pounds of raw silk are produced annually, two-thirds of it being used in native manufactures. Silk-weaving is on the increase. Silk crêpes are made at Quinhon, on the coast. Cattle-raising is of importance; the number of cattle is reported to be 1,250,000. The forests furnish timber, medicinal and dye plants, and rubber. The imports and exports are included in those of French Indo-China (q. v.). Internal affairs are administered by native officials under the control of the French Superior Resident. Duy Tan, born in 1899, son of King Than Thai, became King on Sept. 9, 1907. The local budget for 1908 balanced at 2,915,000 dollars (1 dollar = about 4* cents.) See **FRENCH INDO-CHINA.**

ANTARCTIC EXPLORATION. See **POLAR RESEARCH.**

ANTHONY, WILLIAM ARNOLD. An American physicist, died on May 29, 1908. He was born in Coventry, R. I., on November 17, 1835, studied in the Sheffield Scientific School, of Yale University, and after teaching physics and chemistry at Antioch College in 1867-69, physics at the Iowa Agricultural College in 1869-72 and the same subject at Cornell University in 1872-87, became a consulting electrician in New York City, and also professor of physics at the Cooper Union night school there. He was a member, and had been president of the American Institute of Electrical Engineers, and of the Franklin Institute, of Philadelphia, and had published *Theory of Electrical Measurements* (1902), and (with C. F. Brackett) a *Manual of Physics* (1898), besides contributing a chapter to Thompson's *Röntgen Rays and Phenomena of the Anode and Cathode* (1896).

ANTHROPOLOGICAL ASSOCIATION AMERICAN. See **ANTHROPOLOGY.**

ANTHROPOLOGY. Compared with the previous year, 1908 did not produce many novel points of view with respect either to man's origin or antiquity. Schwalbe reiterated his views on the specific character of the Neanderthal skull, which is disputed by Stolywo; Kollman still attaches phylogenetic significance to the pygmy races, and Kohlbrugge published a careful critical survey of these and kindred problems, without, however, making a positive contribution to the discussion. Towards the close of the year a sensational find was reported from France by Prof. Edmond Perrier. Skeletal remains found in strata of middle Pleistocene age include the skull of an ape-man of more than simian cerebral development, while the thick, low cranial dome, flattened forehead, prominent orbital ridges, broad nose and elongated snout-like maxillaries give it a gorilla-like appearance. The limb-bones are curved and seem to indicate that the anthropoid walked on all-fours. In Prof. Perrier's opinion, the remains represent a far more archaic type than those of Neanderthal or Spy, a type really intermediate between Pithecanthropus and recent man. At the end of the year the scientific world had hardly had ample time for adjudicating on the claims advanced for these interesting specimens and was awaiting a more detailed report.

There was steady progress in almost every field of ethnological, linguistic and archaeological research, especially in America. Of the North Pacific coast tribes, the Tlingit received adequate treatment in the course of the year. Lieutenant Emmons has described in detail the technique of the Chilkat blanket, the ceremonial robe of the northwestern tribes, while Boas showed that the decorative features of the garment are bodily derived from those of painted pattern-boards. Swanton, as the result of a thorough linguistic comparison, argues for an unmistakable, though very remote and possibly indirect historical relationship between the Tlingit and Haida languages. The labors of Kroeber, Barrett, Sparkman and Miss Constance G. Dubois have helped to clear up the problems of South Californian culture. It is now a definitely established fact that both the Shoshonean Luiseno and Cahuilla and the Yuman Diegueno made pottery prior to European influence. The Cahuilla present an interesting example of the mixed effects of geographical and historical environment. While neither a farming nor a fishing population like their eastern neighbors, the Mohave, they have nevertheless adopted a number of important traits from that tribe. Their houses are of Mohave type, the pottery is identical in material, shape and ornamentation, and both tribes have mesquite for their staple food, preparing and storing it in the same way. On the other hand, the Cahuilla reveal their kinship with fellow-Shoshonean tribes in their economic life, lack of martial sense and tribal organization, absence of totemic clan grouping, and the fundamental features of their spiritual life.

The presence of human remains in the auriferous gravels of California has been re-considered by Sinclair with negative results. The Pima have, for the first time, received extensive treatment in Dr. Frank Russell's posthumous monograph. The existence of notched calendar sticks recording historical events for a period of seven-

ty years is one of the most interesting discoveries made by the author.

Spinden's investigation of the Nez Percé clearly establishes the fact that this tribe, as a typical Plateau population, shared in approximately equal degree elements of Plains and North Pacific culture, and possessed originally one of the simplest cultures of North America. The deerskin garments of both sexes are of Prairie type, while the women's basket hat came from the coast. War regalia, parfleches and medicine bags were derived from eastern neighbors, while stone pestles, basketry technique and fishing implements came from the west. One type of habitation approaches the Sioux tipi, while the long-house suggests the plank village-houses of Colombian tribes. The social organization was characterized by village communities akin to those of the coast from California to the Straits of Juan de Fuca, and Nez Percé mythology shows relationship in either direction. The indigenous culture pristine to the acquisition of the horse was probably allied to that of northern California and southern Oregon.

Our knowledge of Plains mythology has been enriched by two substantial contributions,—Kroeber's Gros Ventre collection and Wissler's Blackfoot myths. From Wissler's discussion it appears that the trickster tales now centreing in the figure of the Old Man probably correspond to the old Central Algonkin mythological heritage of the Blackfoot. Many of the traditions are shared by other Plains tribes, but the ritualistic stories seem to be an original product of the Blackfoot mind. The ethnology of the Gros Ventre has been monographically treated by Kroeber. The author indicates the close similarity of the age-class ceremonial organization of the Gros Ventre and the Arapaho; at the same time the Gros Ventre differ, apparently, from all other Plains peoples, in having the same ceremony performed by several distinct companies of men of approximately the same age. Kroeber also essays a comparative analysis of the decorative art of the Plains area. In embroidered ornamentation the Blackfoot are shown to have developed a clearly differentiated style, while the Sioux-Assiniboine and Arapaho-Ute-Shoshone form the other distinct groups and the Gros Ventre and Cheyenne present no marked individuality. In parfleche painting the Shoshone stand out as the originators of a distinct style based on the combination of square and triangular motives, while with other tribes the triangular type pure and simple is predominant. An interesting problem of South American ethnology has been broached by Joyce in connection with a description of inlaid and incrustated specimens from Peru. As the inlay has been definitely identified as turquoise, which is not known to occur in Peru, the question arises whether this material was introduced from Mexico, between the inhabitants of which and the ancient Peruvians there is as yet no evidence of cultural contact, or whether turquoise deposits run within the ancient Peruvian culture-area. The archaeology of the Calchaqui valley was described by Ambrosetti, whose discoveries indicate the occurrence of two distinct cultures of respectively lower and higher type.

In Africa, the problem of ancient Egyptian somatology has again been attacked by Dr. C. S. Myers. The current view upholds the simul-

taneous existence of two races from time immemorial, one Caucasian, the other negroid, and that both still persist throughout the country. Dr. Myers contends that every province contains a homogeneous population, with provincial variations as to the extent of negroid characteristics. The Egyptians, he argues, were always a homogeneous people, varying now towards negroids, now towards Caucasian characteristics according to their own environment. A new point of interest in Egyptian history is Flinders Petrie's discovery of the existence of a Persian colony at Memphis. In northwestern Africa Benhazera and Aymard have made substantial contributions to the ethnology of the Tuareg of the Sahara, the former confining himself to the Ahaggar, the latter to the southern branch of the tribe. The Tuareg are Mohammedans, but practise monogamy, and in their religious life manifest a strong adherence to residual pre-islamitic conceptions. Old graves are consulted as to distant events, and there is a strong belief in vampires and other demons. Socially, there is a fairly sharp division into castes of nobles, vassals and slaves. Inheritance of caste is in the maternal line, and the women enjoy an almost unique degree of freedom, having property rights, suffrage in the tribal council, and the privilege of dissolving marriage bonds at will. From Nigeria, Desplagnes reports the discovery of the ruins of an old city west of the Niger which he identifies with the capital of the old Ghanata realm mentioned in Arabian literature. In the same area, Leo Frobenius, having returned from his expedition to the Kasai region in the Congo State, is again at work among the Mandingo and neighboring tribes. He reports elaborate historical traditions apparently tallying with and complementary to those of Arabian chroniclers and extending back to mediæval times. The industrial life of the natives seems to have degenerated, but ceremonial activity manifests itself in numerous secret societies and circumcision festivals of overshadowing prominence. Like his French predecessor, Desplagnes, Frobenius was able to make interesting finds of stone artifacts.

The origin of the Benin culture revealed by the English punitive expedition of 1897, differing as it does in its bronze castings and ivory carvings from anything else of African provenience, has long baffled European investigators. Influenced by Prof. Grunwedel, Crahmer has recently suggested that the Benin industries were largely derived from East India. Our knowledge of East African ethnology was materially advanced by Prof. Karl Weule's preliminary report on his expedition to the Yao, Makua, and other tribes between the Lukuledi and Rovuma rivers. His discovery of the throwing-stick, which, while known in Australia, the South Sea, and in America, had never been observed among negroes, is noteworthy. He also succeeded for the first time in gaining an insight into the complicated boys' and girls' puberty ceremonials of Eastern Africa. While in Kamerun, Upper Guinea and Loango secret societies are closely connected with age-classes, the relation of age-classes and masquerade dances similar to those of secret societies proved far less intimate among the tribes mentioned. As the social organization of the Bantu was practically a terra incognita, the unraveling of the exogamic matrilinear clan system of the Yao, Makua and Makonde by Weule is another achieve-

ment of great importance. The historical traditions, military, social and hunting customs of the Wahehe of German East Africa were investigated by Captain Nigmann. It is a noteworthy fact that among the Wahehe "totemism" is restricted to food taboos inherited in the male line; neither marriage regulations nor acts of religious veneration are connected with them. An important contribution to our knowledge of Southern Africa is offered in an atlas of Kaffir industries with explanatory text by Muller and Snelleman, while newly observed rock-paintings of the Bushmen have been described by Professor Von Luschan.

Only a relatively small part of Asia is peopled by primitive races lacking historical records. Under the editorial supervision of Sir C. Lyall much light has been thrown on the ethnography of Assam by monographs on the Mikirs and Meitheids. The Mikirs are an agricultural people, distinguished from most of their neighbors by living in pile dwellings and differing from some by the absence of matriarchal institutions. The Meitheids of Manipur represent probably an offshoot of one of the Indian hill tribes. Both Mikirs and Meitheids have been affected by Hindu influences, which make themselves felt with special force in the sphere of religious belief and practice. Among the Mikirs even a vague belief in metempsychosis has been discovered. The epoch-making discovery of a Veddah stone-age by the Sarasin cousins in 1907 was followed in 1908 by Dr. Seligman's expedition to Ceylon. This investigator was able, by additional finds of quartz implements, to confirm the results of the Sarasins. While these explorers had investigated the technology of the tribe, Seligman devoted himself to the study of the social and religious customs. He discovered the existence of maternal descent with exogamy in most of the tribal groups, while in others there is paternal descent without exogamy. The subordination of some of the clans to others is a noteworthy feature of the social system. Religious life is dominated by the worship of the dead, who receive food-offerings and through the mediation of a shaman express their satisfaction, pledge their support, or give counsel to the tribe. Decorative art is very slightly developed, being practically confined to crude rock-paintings, and legendary material is also extremely scant. On the whole, Dr. Seligman finds traces of a far more intimate contact with Singhalese culture than is commonly supposed.

An extremely important contribution to Asiatic ethnology was made in the second part of Dr. Jochelson's memoir on the Koryak, continuing Volume VI of the results of the Jesup North Pacific Expedition and dealing with the history, material culture and sociology of the tribe. The Koryak are divided into two large groups, the Reindeer and the Maritime Koryak. The former live in reindeer-skin dwellings consisting of an outside tent and an inner sleeping-tent, the characteristic of the former being the union of a lower cylindrical part with a conical roof, such as is found among the nomad Mongol and Turkish tribes. The Koryak form of this type of dwelling, Dr. Jochelson conceives as a compromise between the Asiatic nomad type and the Eskimo snow-house. The Maritime Koryak dwell in semi-subterranean earth-lodges with a funnel-shaped storm-roof; these represent an older form of habitation, while the tents probably appeared among the Koryak together with

the domesticated reindeer. Jochelson shows that the semi-subterranean house formerly existed among all palæ-Asiatic people, such as the Chukchee, Kamchadal, Gilyak, Ainu, and Yukaghir, while they were absent from the territory of the Turkish Mongolian tribes. Jochelson compares the palæ-Asiatic underground house with that of northwestern America and finds its closest parallel in the dwellings of the ancient Aleut and Alaskan Eskimo; he inclines to the theory that historical contact, not independent invention accounts for the spread of the semi-subterranean lodge over the northeastern Asia and the North Pacific coast of America. As a moiety of the Koryak tribe breed reindeer, the problem of the origin of this cultural feature obtrudes itself on the ethnologist's attention. Jochelson traces its distribution from Lapland to the Chukchee. As the Lapps own the best-trained race of reindeer and have advanced to the stage of storing provender for their herds, he inclines to the view that, if reindeer-breeding spread from a common centre, its origin is to be sought in the extreme west of the Old World rather than in northeastern Asia, where but partial domestication has been effected and where the Koryak use the domesticated animal more for slaughter than for transportation. It is possible, as Bogoros suggests, that the Koryak and Chukchee tamed wild reindeer found in their territory under the influence of Tungus culture, but without actually obtaining tamed animals from the Tungus. This is supported both by the diversity of the Tungus and Koryak species and from the use of the animal for riding by Tungus and for draught by the Koryak. The fact that the Koryak were originally a sedentary people and later adopted a nomadic life as a necessary incident to maintaining herds is of high theoretical significance in view of the commonly accepted scheme of human evolution from an originally roaming to an ultimately settled mode of life. Excavations of ancient Koryak underground dwellings led to the discovery of potsherds, establishing the existence of pottery among the Koryak in the recent past. Turning to the ceramic finds of other palæ-Asiatic tribes, especially the Ainu, Jochelson, in accord with Koganei and Laufer, refutes the assumption that the pottery was made by any race other than the immediate predecessors of the present populations. The Ainu, more particularly, must simply be supposed to have lost the art with the advent of metal utensils.

In Australia, Dr. Eylmann has supplemented the labors of Howitt, Spencer, Gillen and Roth by a study of the South Australian aborigines. Strehlow has begun the publication of reports on the Arunta (Aranda) and their southwestern neighbors, the Loritja. He is able to correct some statements of Spencer and Gillen with respect to totemistic conceptions. According to these authors, the totem deities wandered about in the mythological age and ultimately descended into the ground, while their bodies assumed the shape of trees, rocks, or stone and wooden charms called *churingas*; the birth of children is uniformly ascribed to the never-ceasing re-incarnation of the totem. Strehlow has found a variety of conceptions as to the cause of birth. Either a germ inherent in the transformed totem-body may enter the body of a female passer-by; or, the totem may ascend from under-ground and throw at her a small bull-roarer, which develops into an infant; or,

the totem itself may enter the woman and be re-incarnated. The last case, however, is rare, and never can a totem experience a second re-incarnation. The linguistic problem was attacked by Planert, who, on the basis of data furnished by an Australian missionary, has worked out the grammar of the Arunta and Dieri languages. The sixth volume of the Reports of the Torres Straits Expedition sheds a flood of light on the magic and religion of the Eastern Torres Straits islanders. It is the joint work of Drs. Haddon, W. H. R. Rivers and C. S. Myers. A point of interest in this work as well as its predecessor, is the original plan devised by Prof. Rivers, of studying the complicated kinship system of a primitive tribe by means of an elaborate genealogical record. Van der Sande's *Nova Guinea* furnishes a mass of information on the ethnography of Dutch New Guinea. The author refutes the theory that all Papuans are dolichocephalic and establishes the hitherto ignored occurrence of weaving in part of the island.

Certain wide problems of theoretical significance continue to excite lively discussion. Among these is the origin of geometrical art designs, as to which three principal theories are advanced. Prof. Haddon suggests their derivation from life-like representations of the organic world, which have gradually become conventionalized. The German school, especially as represented by Dr. Max Schmidt, who has recently added a discussion of Peruvian decorative art to his former contributions to this subject, holds that the technique of basketry has led to designs which have later had a realistic meaning read into them. American students, such as Boas, Wissler and Kroeber, also contend that the name or symbolical interpretation of geometrical patterns is a secondary feature, but do not accept the technological theory, because it is found that even when technical conditions are the same, the artistic style may be quite different in different areas. The origin of higher religious conceptions has been rather vigorously discussed in England since Andrew Lang's theory that the most primitive tribes have already the conception of a morally pure supreme "all-father." In Germany Ehrenreich has adopted the same view, which was also being defended by P. W. Schmidt in a series of erudite articles in *Anthropos*.

The question of the dispersion of myths was given a curious interpretation by Assyriologists, who assume that all astral mythology originated in Babylonia and has thence traveled to the four corners of the globe. This curious theory was ably refuted during 1908 by P. W. Schmidt, who once more calls attention to the psychical unity of mankind as an explanation of strikingly homologous myths among unrelated or geographically remote peoples. The interpretation of myths is also a moot question. Frobenius, Ehrenreich and Stucken assume that myths are primarily representations of celestial phenomena; in America the standpoint has recently been defended that myths are originally nothing but folk-tales, which may subsequently be invested with an explanatory function or a celestial setting.

As always, there is a great deal of interest in the existence or non-existence of mental and physiological differences between the white and other races. Dr. F. G. Bruner made a special

study of Indians, Negroes and Filipinos subjected to the mental tests of the psychological laboratory from which it appears that in the hearing sense at least positive differences do exist, the whites showing superiority in most cases. This is in general agreement with the results of the Cambridge Anthropological Expedition to Torres Straits. Dr. Aleš Hrdlička has brought out a discussion of his observations on the physiology of the Indians from which it appears that there are some differences in rate of pulse, muscular strength, in dentition, respiration rate, etc., though he himself considers them of no functional significance.

ANTHROPOLOGICAL SOCIETIES AND FIELDWORK. An anthropological event of cosmopolitan significance was the Sixteenth International Congress of Americanists, which met at Vienna from September 9th to 14th. The United States was represented by Profs. Boas, Saville, MacCurdy and Peabody. The sessions were marked by a very full consideration of South American problems. Owing to the national celebrations planned for 1910 by Mexico and the Argentine Republic, it was decided to hold two distinct sessions in that year, one in each of these countries. The difficulty of considering American problems apart from those of the Old World having become manifest at the meetings, the idea was broached of expanding the Congress into an ethnological convention embracing in the scope of its programme the entire field of anthropological science without continental limitations.

The American Anthropological Association held its annual meeting during Christmas week, joint sessions with the American Folk-Lore Society and Section 14 of the American Association for the Advancement of Science being held at Johns Hopkins University, Baltimore. The officers for 1908 are: President, Professor Franz Boas; Vice-Presidents, Miss Fletcher, Dr. G. A. Dorsey, Mr. Clarence B. Moore, and Prof. W. H. Holmes; Secretary, Dr. George G. MacCurdy; Treasurer, Mr. B. T. B. Hyde; Editor (of the *American Anthropologist*, the organ of the Association), Mr. F. W. Hodge. The Association is continuing to publish Volume I of its *Memoirs*. The Anthropological Society of Washington met regularly throughout the year, embracing in the scope of its discussions practical problems of Indian education and administration as well as strictly anthropological questions. Its officers are: President, Dr. Walter Hough; Vice-President, Mr. James Mooney; Secretary, Dr. John R. Swanton; Treasurer, Mr. George C. Maynard; Councilors, Messrs. F. W. Hodge, C. L. Robinson, J. N. B. Hewitt, I. M. Casanowicz, and W. E. Safford. Monthly meetings were held by the Ethnological Society of New York, which is affiliated both with the New York Academy of Sciences and the National Anthropological Association. General Wilson, President, and Prof. Saville, Secretary, are the executive officers. The American Folk-Lore Society continues the publication of its *Journal* under the new editor, Prof. Franz Boas.

The Bureau of American Ethnology (Chief: Professor Wm. H. Holmes) has issued its *Twenty-sixth Annual Report*, embodying Frank Russell's "The Pima Indians" and Swanton's "Social Condition, Beliefs, and Linguistic Relationship of the Tlingit Indians." Progress is reported in the preparation of the second volume of the *Handbook of the American Indians*

North of Mexico and of the *Handbook of American Languages*, both of which were in the proof-sheet stage. The United States National Museum has published in its *Proceedings* Prof. Mason's "Vocabulary of Malaysian Basket-Work" and Prof. Boas' "Decorative Designs of Alaskan Needle-cases." The death during the year of Prof. Otis T. Mason (q. v.) was deplored by technological students the world over, and Dr. Walter Hough temporarily assumed the head of the division of ethnology. A considerable number of field expeditions have been conducted under the auspices of American institutions. The American Museum of Natural History equipped the Stefansson expedition to the Eskimo between the Mackenzie and Coppermine rivers. Mr. Harlan I. Smith continued his archaeological survey of Wyoming; Dr. Robert H. Lowie studied the Chipewyan of Lake Athabasca and the Assiniboine of Montana; Mr. Alanson Skinner visited the Cree of James Bay; and Mr. Gilbert L. Wilson commenced his investigations of the Hidatsa. Dr. George A. Dorsey, curator of ethnology at the Field Columbian Museum, undertook an ethnological trip around the world, in the course of which he crossed the Island of Bougainville; Dr. William Jones and Mr. Fay Cole were continuing their work in the Philippines. Dr. Frank G. Speck of the University of Pennsylvania and Free Museum of Arts and Sciences investigated the Montagnais of Eastern Canada. The Department of Archaeology of Phillips Academy, Andover, Massachusetts, explored certain caverns in the Ozark Mountains, Arkansas, under the direction of Prof. Charles Peabody and Mr. W. K. Moorehead. The School of American Archaeology founded by the Archaeological Institute of America undertook excavations in Colorado, Utah, and New Mexico and has projected an expedition for the study of Maya culture. Dr. J. Walter Fewkes of the Bureau of American Ethnology went to the Mesa Verde National Park in Colorado to direct the excavation and preservation of the cliff-dwellings there. Professor A. L. Kroeber of the University of California made another trip to the Mohave Indians of Arizona and California, while other members of the department completed the survey of about three hundred shellmounds on the northern shores of San Francisco Bay and continued ethnological studies among various Californian tribes. Mr. George G. Heye of New York equipped an ethnological expedition, undertaken by Dr. S. A. Barrett, to the little-known tribes of Ecuador, and under the same auspices Prof. Saville made an archaeological trip to this country in the early part of the year. Of English expeditions may be mentioned Dr. Seligman's visit to the Vedda, Dr. W. H. R. Rivers' investigations of the Solomon Islands and E. Torday's researches among the Upper Congo tribes. The ethnological section of the great Russian Riabouschinsky expedition has started, under the leadership of Dr. Waldemar Jochelson, to explore the Aleutian Islands and Kamchatka. The French besides exhaustive studies of the archaeology of their native land, are carrying on investigations among the natives of Nigeria. Dr. Leo Frobenius, the well-known German scholar, was at work in the same region, and in Costa Rica Dr. Walter Lehman of the Royal Ethnographical Museum of Berlin was engaged during the year in linguistic studies and archaeological excavations.

To the anthropological journals there has been added the *Revue des Etudes Ethnographiques et Sociologiques* (Paris), edited by M. Arnold Van Gennep, known for his writings on Madagascar and Australia.

The teaching of anthropology has been advanced in several American institutions. The University of Pennsylvania has added to its corps of instructors, Dr. Edward Sapir, who lectures on North American linguistics; Mr. Spinden has been appointed a teaching fellow at Harvard University; at the University of Minnesota the Department of Anthropology has been organized into a division co-ordinate with the Department of Sociology, into which it had previously been merged; and at the University of Nebraska, Dr. Hutton Webster lectures on both sociology and anthropology.

ANTIGUA. An island of the British West Indies, constituting, with Barbuda and Redonda, a Presidency of the Leeward Islands (q. v.). Total area, 170 square miles; total population (1904), 34,953. St. John's, the capital, had 9,262 inhabitants in 1901. About 17,000 acres are under cultivation, mainly with sugar-cane. There are two central sugar factories. The sugar output was 23,000 tons in 1907-8, and 25,000 tons in 1908-9. Other products are cotton, tamarinds, arrow-root, and molasses. The imports and exports in 1907-8 were valued at £168,396 and £174,972 respectively. The revenue in 1907-8 was £50,620; the expenditure, £46,968; and the public debt, £130,500. Antigua is the seat of the Governor of the Leeward Islands—in 1908 Sir E. B. Sweet-Escott.

ANTIMONY. As antimony was in slight demand during 1908, but little of the metal was mined during the year in the United States and low prices prevailed. In 1907 the United States Geological Survey reported the production as 2,022 short tons valued at \$622,046 as compared with 166 short tons valued at \$602,949 in 1906. In 1908 there were heavy imports of Chinese ore at low prices which filled the American market restricted as it was by the absence of any demand from the railroads by whom it is used in the manufacture of anti-friction metal. But one smelter, that at Chelsea, Staten Island, was in operation during the year and the price for the metal averaged 8.704 and 8.419 cents per pound for Cookson's and Hallett's brands respectively as compared with 16.969 and 15.527 cents in 1907. The imports of antimony in the form of metal, regulus, ore and salts far exceed the domestic production and in 1908 amounted in value to \$679,909 as compared with \$1,604,179 in 1907.

ANTIQUARIAN SOCIETY, AMERICAN. A learned society, organized in 1812. The membership is restricted to 140, new members being elected because of prominence in some phase of historical or intellectual activity. Its library which is located at Worcester, Mass., contains 100,000 volumes and many thousand pamphlets and is rich in early American imprints, newspapers, almanacs, Spanish Americana and American history and antiquities. It has published eight volumes of *Transactions*, as well as its *Proceedings* from 1843 up to date. Its officers are: President, Waldo Lincoln; Vice-Presidents, Edward Everett Hale, and Samuel Abbott Green; Secretary for Foreign Correspondence, Franklin Bowditch Dexter; Secretary

for Domestic Correspondence, Charles Francis Adams; Recording Secretary, Andrew McFarland Davis; Librarian, Clarence Saunders Brigham.

ANTI-SALOON LEAGUE. This organization, which has done notable work in the spread of the prohibition sentiment throughout the United States, especially in the South, began with the organization of an Anti-Saloon League in the District of Columbia, on June 23, 1893. From this grew the national organization, which was founded in Washington on Dec. 18, 1895, mainly through the efforts of Bishop Wilson of the Methodist Episcopal Church. The object of the League is the federation of churches of every name with the temperance societies and other organizations opposed to the liquor traffic, and the concentration of these forces against the common enemy. Its object is thus expressed by one of its chief officers: "The object of the League is the ultimate extinction of the liquor traffic; it does the possible good while pressing on to what is yet the impossible best. It has no permissive feature in its creed. It stands for prohibition in every foot of territory that existing public sentiment will capture or keep. To this end it bolts conventions, puts principle above party, and absolutely refuses to quarrel with any individual or agent that hates the liquor traffic." The work of the League in 1908 will be found noted in the article PROHIBITION. The officers in 1908 were as follows: (1907-1909) President, Bishop L. B. Wilson (Methodist Episcopal); Vice-Presidents, Bishop G. M. Mathews (United Brethren), Father James M. Cleary (Roman Catholic), Rev. David J. Burrell, D. D. (Reformed), Bishop J. W. Hamilton (Methodist Episcopal), Rev. Frederick D. Power, LL.D. (Disciples), Rev. W. B. Crumpton, D. D. (Baptist), Judge Charles A. Pollock (Methodist Episcopal), Rev. Washington Gladden, D. D. (Congregational), Rev. William L. McEwan, D. D. (Presbyterian), Rev. J. C. Barr, D. D. (Southern Presbyterian), Bishop H. C. Morrison (Methodist Episcopal Church, South), Bishop William N. McVickar (Protestant Episcopal); General Superintendent, Rev. Purley A. Baker, D. D. (Methodist Episcopal); Recording Secretary and Secretary of Headquarters Committee, Rev. S. E. Nicholson (Friends); Corresponding Secretary, Mr. James L. Ewin (Methodist Episcopal); Treasurer, Mr. Foster Copeland (Presbyterian); Assistant General Superintendent, Rev. G. W. Young, D. D. (Methodist Episcopal Church, South); Chairman Headquarters Committee, Rev. Howard H. Russell, D. D. (Congregational); President Board of Trustees, Rev. Brooks Lawrence (Presbyterian).

ANTITOXIN. The annual report of the Metropolitan Asylums Board, London, England, for 1907, supplied further testimony to the value of antitoxin in diphtheria. From 1887 to 1891 the death rate in cases admitted to the board's hospitals was 33.6 per cent., and in 1893, the year previous to the advent of antitoxin, 30.1 per cent. During 1907, it was 9.6 per cent. and from 1902 to 1906, 9.3 per cent. The significance of these figures is accentuated by those of the Brook Hospital, at which a record has been kept of the mortality according to the day of the disease on which the antitoxin was given. During the decade, 1897 to 1907,

6,556 cases were treated. Of these 250 patients received an injection of antitoxin on the first day of the disease and all recovered; 1,513 were injected on the second day with a death rate of 4.3 per cent.; 1,690 received antitoxin on the third day, with a mortality of 11.2 per cent.; 1,338 were injected on the fourth day, with a mortality of 16.9 per cent.; and 1,765 received antitoxin on the fifth day with a mortality of 18.6 per cent. Antitoxin sera was administered by Parkinson through the rectum in cases where objection was made to the hypodermatic needle. A cleansing enema was given where necessary, and the serum injected into the lower bowel through a glass syringe. The antitoxins were absorbed, and took effect in the same way as after subcutaneous injection.

ANAPHYLAXIS is the term applied to a condition of hypersensitiveness developed in certain individuals after a dose of antitoxin has been given them. A second injection in such individuals, if given within a short time, produces symptoms of profound toxemia, not seldom ending in death. This phenomenon attracted wide notice in 1908; a large number of cases were reported and extensive investigations were undertaken in the hope of solving the problem. At the end of the year no satisfying theory had been evolved, and there was no means of determining beforehand whether anaphylaxis will develop in a given individual. The reaction is caused not only by the bacterial vaccines, but also by other proteid materials such as ordinary horse serum and white of egg. Wells studied certain phases of the chemistry of anaphylaxis, and found that egg albumen freed from other proteins of egg-white, sensitizes in doses as small as 1/20 of a millionth of a gram and that the minimum lethal dose for sensitized guinea pigs is about half a milligram by intraperitoneal injections, and from 1/20 to 1/10 milligram when thrown directly into the blood. He thinks that, in view of the effect being produced by such minute doses, the injected material is not the lethal agent, but that it causes death by liberating toxic substances from the cells of the intoxicated animal; and further, that both sensitizing and intoxicating agents are either identical or different portions of the same molecule. Consult "Anaphylaxis Induced by Bacterial Proteins," by D. H. Bergey, M. D., in the *Jour. Am. Med. Association*, Sept. 5, 1908.

ANTI-VIVISECTION. See VIVISECTION.

AQUEDUCTS. The Catskill Aqueduct of the New York City water supply, which is to deliver 500,000,000 gals. per day, will carry water from the Catskill Mountains to within the city limits. During the years 1907 and 1908 the proposed line was under careful examination, particularly that portion of it crossing beneath the Hudson from Storm King Mountain on the west, to Breakneck Mountain on the east. Numerous wash boring and diamond drill hole examinations were made to determine the nature of the material through which the line must pass, especially at the Hudson River section. In connection with the same general scheme to supply New York City, and which at first it was estimated would require \$161,000,000, but later found, would cost \$210,000,000, it was proposed to develop a supply from driven wells to be sunk on Long Island, in Suffolk County. This it was believed would furnish 250,000,000 gals. per day, and at a cost, not in excess of \$47,000,000,

part of which would be required for the construction of a 75 mile aqueduct to convey water to Brooklyn, and other sections at the western end of the Island. All American records were broken for tunnel work during the month of October, when measurements in the south heading of the Elizabeth Lake tunnel of the Los Angeles aqueduct showed an advance of 446 feet, the best previous figure having been obtained on the Gunnison Tunnel which is part of the Uncompahgre irrigation project of the United States Reclamation Service. The Elizabeth Lake Tunnel, forming part of the aqueduct, will carry the water through the Coast Range Mountains, and be 27,215 feet long when completed. It is 12 by 12 feet in cross section and located about 60 miles north of Los Angeles. The Los Angeles Aqueduct, which was begun in 1907, is one of the most important works of the kind ever put under construction, and its cost was estimated at \$25,000,000.

ARBITRATION AND CONCILIATION, INDUSTRIAL. Conditions in 1908 were favorable for the increased adoption of methods of arbitration in the settlement of trade disputes. Several causes were contributing to this result. The consolidation of industry and the increasing centralization of labor union organization and control have resulted in the possibility of labor disturbances affecting wide areas and a large proportion of the supply of some service or commodity upon which public welfare depends. The public in self-defence have asserted the primacy of their interests, and have made a vigorous demand that trade disputes be settled without resort to industrial war. These conditions are especially apparent in the supply of transportation both municipal and interstate, and the supply of coal, but exist in many less important cases. As a result, both employers and workmen are more and more recognizing the rights of the public and resorting to arbitration to settle their differences. Though 1908 was a year of industrial depression and unemployment (see UNEMPLOYMENT), it was by no means notable for strikes and lockouts. See STRIKES AND LOCKOUTS.) This was very largely due to the unusual use of arbitration and conciliation. Arbitration takes the form of the submission of disputed points to a joint committee representing employer and employees or to a board of public men so chosen as to insure impartiality or to state labor bureaus. The method to be used is usually prescribed in joint trade agreements between employer and union. Conciliation is usually the result of intervention of state or national labor bureaus under laws authorizing such interference in the interest of the public, though occasionally conciliation is brought about by private agency. Thus the New York Bureau of Mediation and Arbitration reported that between January 1 and September 1, 1908 there were 94 new joint trade agreements between employers and unions in that State; some of these were between associations of employers and organized labor. During the same period the Bureau intervened in more than two-score of strikes and lockouts, while a half dozen cases were successfully arbitrated by the Bureau and private agencies.

The National Bureau of Labor was equally active in conciliating labor differences. The Erdman Law of 1898 which remained practically unused until 1907, became in 1908 a most effective means of averting strikes. For the

first time, a year of serious industrial depression was passed without an extensive railroad strike. This was due to the uniform maintenance of the wage level brought about largely by Chas. P. Neill, Commissioner of Labor, and Martin A. Knapp, Chairman of the Interstate Commerce Commission, constituting a sort of government board of mediation and arbitration. These men mediated not only in cases involving wages of railway employees, but in others involving various phases of the relation of union labor to employers. The undoubted success of this board during 1908 will add greatly to its growing prestige with both labor and capital, a condition increasingly favorable to its success. The significance of the board's activities is increased by the fact that wage reductions by the railways would have stimulated wage reductions elsewhere with consequent increase in labor disturbances. A bill was introduced in Congress favoring compulsory investigation of trade disputes, but received little consideration. Organized labor opposed it as a step toward compulsory arbitration. President Roosevelt's interest in maintenance of industrial peace led him to send Mr. Victor S. Clark to Canada to inquire into the working of the new Industrial Disputes Investigation Act of March 22, 1907. His report was published in the *Bulletin of the Bureau of Labor* for May, 1908. The Canadian law provides for compulsory investigation of trades disputes, and their decision by an impartial board; it leaves the disputants free to accept or reject the award. Mr. Clark found that the act had undoubtedly reduced the number of strikes. While the time during which the act had been in force was short and trade conditions abnormal, Mr. Clark judged that it had on the whole affected working conditions favorably, and had not affected industries adversely. He believed it much more applicable to conditions in the United States than compulsory arbitration would be. He found that both employers and public in Canada with very few exceptions are favorable to the act, while considerable division exists among the working people. The labor opposition he found to be due to the belief that workmen can accomplish more by negotiations backed by sudden strikes than when strikes are deferred; and also to the belief that government intervention is likely to have a class bias hostile to labor. The results of the operation of the law during the year show these beliefs not to be well founded. A law embodying the essential features of the Canadian law was proposed in Wisconsin near the close of the year for legislative action in 1909.

CANADA. The new law of March 22, 1907 was called into operation in several important and many minor labor disputes with uniformly satisfactory results. This law compels the submission of trade disputes to an arbitration board and forbids either a strike or lockout during the deliberation of this board, but does not attempt to compel acquiescence by either party to the decision rendered. The belief that this latter service will be accomplished in all important cases by a determined expression of public opinion was fully warranted by the results of the first year's experience. During this first year 29 trade disputes in which strikes were threatened were submitted to an arbitration board under the new law. Of these 28 were successfully settled. Of the disputes settled 13

concerned coal mines, 3 metalliferous mines, 8 railroads, 2 shipping and one street railways; the one not settled concerned coal mines. Later, in 1908 occurred a second notable failure resulting in the strike of the machinists of the Canadian Pacific Railroad. (See STRIKES AND LOCKOUTS.) In addition to the comments made on this law in the preceding paragraphs it should be noted that the success attending a skillful arbitrator has tended to bring about his selection over and over again. The best results have been achieved by informal proceedings, with an almost entire absence of court methods and dominated by an evident spirit of conciliation. The other method of more strictly judicial procedure with sworn witness and an attempt to thrust forward the police features of the law has not proven successful.

ENGLAND. The Board of Trade issued during the summer a report of the proceedings, under the Trade Disputes or Conciliation Act of 1896. This act provides for voluntary arbitration or conciliation, the arbitrators to be chosen jointly by the parties interested or by means of the intervention of the Board of Trade. This latest report shows that in the period between August 1896 and July 1907 there were 232 cases dealt with under the act, and that of these 168 were successfully handled. In 140 of all the cases application for arbitration or conciliation was made by both parties to the dispute, in 60 cases by workmen, in 22 cases by employers, and in the remaining cases by arbitrators who had failed to agree. Of the cases dealt with 82 were in the building trades, 45 in the metal, engineering and shipbuilding trades, 27 in mining and quarrying, 20 in the boot and shoe industry, 17 in transportation, 14 in printing trades and 11 in textile industries. Some of the largest and most portentous trades disputes have been settled by the voluntary methods provided by this act. The large strikes of 1908 were thus settled. (See STRIKES AND LOCKOUTS.) In July the Scottish Miners' Conciliation Board agreed to a reduction of 6d per day in wages. About 100,000 miners were affected.

NEW ZEALAND. New Zealand was known for many years as "the land without a strike." This was owing to the compulsory arbitration law requiring the submission of trade disputes to a special Arbitration Court, whose decisions must be obeyed. However late in 1907 a group of slaughtermen struck; they gained an advance in pay, but all those who could be located were fined more or less heavily for violating the compulsory arbitration law. Since then several strikes have occurred. These strikes have all been small; no sympathetic strikes have occurred so that disturbances have been locally confined. The apparent reason for this breaking down of the arbitration system is that labor is becoming more and more dissatisfied with the results of the system. So long as the decrees of the Arbitration Court tended to be favorable to labor no trouble was experienced in enforcing the law. Public opinion, even among laborers, strongly resented resort to illegal means of industrial warfare. Advancing wages reappeared in higher prices, and the Court latterly has refused many times to grant labor demands, on the ground that workmen are receiving fair wages and fair treatment. Hence the growth of opinion among workmen adverse to the law and favorable to resort to more vigorous methods. They

say that since employers, who at first were opposed to the law, are now supporting it, it must be advantageous to them, and therefore disadvantageous to labor. The acute political controversy arising out of the situation led to most drastic legislation. The new law passed in October completely remodeled previous arbitration acts. It provides a penalty of £10 for each striker and an additional fine of £1 for each week the strike continues. Lockouts are made punishable by a fine of £200, plus £50 for each week they are in force. Special penalties are provided for strikes in industries most closely connected with public convenience and welfare. If strikers default in payment of fines, these are to be deducted from their wages when they return to work, employers retaining 20 per cent. of weekly wages. The Boards of Conciliation are abolished and replaced by Councils of Conciliation to be composed of a salaried commissioner and six assessors from the industry concerned, three appointed by each party to the dispute. If the Council fail, the case goes to the Arbitration Court. The previous uniform wages law was also amended, the Arbitration Court being authorized to fix a normal or average wage and also an "exertion" wage, or extra pay for extra work. The new law was received with expressions of bitter opposition by the New Zealand Trades Council, representing organized labor. The bone of contention was the right to strike, and labor manifestoes issued near the close of the year indicated that the new act is likely to be put to severe tests.

NEW SOUTH WALES. A struggle similar to that in New Zealand was acute in New South Wales. Labor demands the right to strike and the public has outlawed the strike as destructive of its welfare. In March the arbitration act was amended by the creation of conciliation boards for each industry. The primary object was to reduce the number of cases that must be taken to the arbitration court, thus expediting the settlement of disputes. In July occurred a strike of State employees on tramways in Sydney. The government refused any investigation except that provided for by the new act. The Premier obtained from the Industrial Disputes Court permission to prosecute the strike leaders and collect heavy fines from the trade union involved. After a few days of conciliatory persuasion most of the strikers returned to work. Both during the strike and at its close there were almost riotous manifestations of dissatisfaction with the arbitration laws.

ARBITRATION, INTERNATIONAL. See INTERNATIONAL ARBITRATION.

ARBITRATION, LABOR. See ARBITRATION AND CONCILIATION, INDUSTRIAL.

ARCHÆOLOGICAL INSTITUTE OF AMERICA. A learned society, founded in Boston in 1879 and incorporated by act of Congress, approved May 26, 1906. The legal act of incorporation was achieved on January 2, 1907. The purpose of the institute is to promote archæological research by founding schools and maintaining fellowships; by conducting excavations and explorations, and aiding in those conducted by others; by publishing the results of archæological research and by holding meetings for the presentation and discussion of archæological subjects, and by maintaining courses of public lectures. Under the auspices of the Institute, the American School of Classical Studies at Athens was established in 1881 and incor-

porated in 1886. This school has an endowment of about \$100,000 and a building and library in Athens. The Institute and the School maintain each a fellowship, and the Carnegie Institution at Washington supports a fellowship in architecture in the school and grants \$1400 annually for excavation. The American School of Classical Studies in Rome was organized in 1895. It has an endowment of \$100,000. The Carnegie Institution maintains two fellowships for research in the school and grants \$1000 annually for publication. The American School for Oriental Study and Research was founded in 1900 and has already done important work in explorations in Palestine. The School of American Archæology was founded in 1907. It directs all the researches of the Institute in the American field, and affords opportunities for field work and training students in archæology. An extensive system of coöperation with universities and scientific organizations for investigation in the various parts of the American Continent is in process of organization. During 1908 excavations were conducted in Colorado, Utah, New Mexico, and Central America. See ANTHROPOLOGY.

Courses of lectures are provided annually for each society. American scholars, representing various fields of archæology, art, and literature, are sent as lecturers, and arrangements are made to secure the services of foreign lecturers from time to time. The Institute is composed of twenty-one affiliated societies. These were in 1908 as follows: Boston Society, New York Society, Baltimore Society, Pennsylvania Society, Chicago Society, Detroit Society, Wisconsin Society, Cleveland Society, Connecticut Society, Washington Society, Iowa Society, Pittsburg Society, Southwest Society, Colorado Society, Cincinnati Society, St. Louis Society, Rochester Society, the Utah Society, San Francisco Society, Kansas City Society and Northwest Society. The membership is about 2,000; the official publication is the *American Journal of Archaeology*. The officers in 1908 were as follows: President, Francis W. Kelsey; Vice-Presidents, Charles P. Bowditch, Allen Marquand, George F. Moore, Edward Robinson, and F. B. Tarbell; Secretary, Mitchell Carroll, George Washington University, Washington, D. C.; Treasurer, William Sloane.

ARCHÆOLOGY. If possible, 1908 saw greater archæological activity than ever before. Not only were the Americans, English, French, Germans, and Italians busy, but the growing interest in the work is evinced by the formation of a new society in Italy, organized for the purpose of excavating in Egypt.

At Assur the Germans continued their explorations. The site of the great city wall on the western edge of the hill was examined and four building periods, extending from 1300 B. C. to 600 B. C., were made out. Of the inner wall 1100 meters were searched, in which extent twenty-nine towers and two doors were uncovered; of the outer wall 1300 meters were followed and four doors located. In the course of the digging, houses of various periods were discovered. These belonged to Assyrian and Parthian settlements. Of particular interest is the recovery of a chest-shaped document of Shalmanasar II, containing details about the building of walls. Of prime importance was the finding of inscriptions of Sin-šar-iškum which tell that he gave a Nebo Temple in Assur.

At Babylon the excavations on the western edge and southern corner of the Southern City, so-called, were finished. By means of a sectional cut the outer city wall between Babil and Nilbrücke has been examined. It proved to consist really of two walls, an inner one seven meters in thickness, and an outer one 7.66 meters thick, with an intervening space of 12.40 meters between them. Before the outer wall lay still a third one of 3.33 meters thickness. The excavations on the site have brought about a necessity for revising our ideas as to the size of ancient Babylon. The enclosed area was found to be much smaller than has been supposed. In the "palace" mound were discovered two palaces, one of them erected by Nabopolassar, the other by Nebuchadrezzar. Between them ran a street. The later building consisted of series of chambers arranged around courts. Of the latter the royal was the largest, and on the southern side of it was found the audience chamber of the Selamik. The front of the chamber showed a rich floral decoration in enamelled bricks.

At Susa the French excavations under the direction of de Morgan met with results quite comparable with anything done before on the site. The deposit representing the old town begins at a depth 75 feet below the present ground level and consists of a stratum varying from 12 meters to 15 meters in thickness. The antiquity of this deposit is proved by the inscription found in it. From this stratum came almost innumerable objects, such as painted vases, axes, spear-heads, saws, and cooking utensils of bronze, and a large collection of carved images; owing to repeated sacking of the town but little gold and silver were found. There was discovered, however, a fine statue of King Kari-busha-Shushinak. His throne is decorated with an heraldic group of lions. Besides this statue were recovered a magnificent head of a priest-prince, and a stele of Sargon the Elder dating about 3800 B. C. and showing a sculptured decoration of warriors, captives, and vultures feeding on corpses.

At Saktjegözy, north of Aleppo, Garstang excavated, and discovered a temple surrounded by a wall six and one-half feet thick. The main gate of the wall was decorated with lions and composite figures in the form of winged quadrupeds with human heads, and tails ending in birds' heads. Several bas-reliefs showing the king accompanied by his falconer and other officials, and a winged disk containing a crescent and a star were discovered, as well as a circular altar supported by two sphinxes; and other bas-reliefs showing the king or god seated at a table with a worshiper and an eagle-headed demon performing the ceremony interpreted usually as the fertilization of the date palm. While Assyrian influences are present in the work, the treatment suggests rather the work of Hittite artists of the eighth century B. C.

At Olbia in Southern Russia excavations brought to light the foundations of what appears to be a fortress. An interesting find was that of a gilded spindle of human bones.

SYRIA AND PALESTINE. The examination of the great tunnel at Gezer was completed. It was found that it ended in a cave in which was an abundant spring. The tunnel itself descended by a sequence of eighty steps until its lowest one was 130 feet below the level of the ground and only an inch or so above the level of

the water. The length of the tunnel is 219 feet. In niches along its sides probably stood statuettes. The tunnel was first dug at a date not later than 2000 B. C. From that time it continued in use until abandoned in the years between 1400 B. C. and 1200 B. C. The spring with its underground approach may well have been used to supply the city with water in time of siege, and may also have been used for religious rites. An interesting find in connection with the excavations was that of two small lumps of iron, the oldest evidence we have of the use of that metal in Palestine. On the same site, Gezer, was found an ivory pectoral bearing a figure of the Egyptian King Meren-Ptah adoring Thoth. On the ivory were also cartouches of the King. This corroborates what has been known for some time, namely, that Meren-Ptah had obtained control of Gezer. In a cistern, contemporary with the eighteenth dynasty in Egypt, were found the fragments of three fine alabaster vases and a beautiful saucer. In a trench, among other objects, was discovered a scarab of a Hyksos King. A skeleton of a youth who had been cut in two was found in one of the foundation deposits.

EGYPT. At Abusir the Germans completed the excavation of the temple for the cult of the dead. This splendid building, which was built before all the pyramids, was erected by Schu're. At Abydos Garstang found a grave, dating in the Hyksos period, which contained black and glazed vases of non-Egyptian character resembling those coming from Syria and Asia Minor. On the strength of this evidence the idea is put forward that the much discussed Hyksos belonged to the Hittite folk-group. The work of the Egyptian Research Account at Gizeh has brought to light remains of the first three dynasties. The remains give the impression that the civilization at this place was similar to that of Abydos. Stone vases and objects of flint and ivory were discovered. The Expedition of the Metropolitan Museum of New York City uncovered the northern side of the pyramid at Lisht and also laid bare its entrance. Work was inaugurated as well at the Oasis of Kharga, where, it is hoped, material important for the study of the Græco-Roman and early Christian periods will be found.

By his excavations on the site of the temple of Ptah at Memphis, Petrie showed that in both the first and second temple court were great granite doors in form like the entrances to tombs, and that these served for offerings made in honor of the builder King Rameses. During the eighteenth dynasty, apparently the offerings were collected, and, except for the most important, thrown away. In the earth under the foundations of the great west hall were discovered a considerable number of small offering tablets, dating before the beginning of Rameses temple. More than twenty are complete. The arrangement of this west hall is noteworthy. In the middle is a great group of columns whose function was to support a special roof and to afford light for the hall. Opposite the great pylons were colossals of white limestone, and behind them another colossal statue of alabaster. On both sides of the entrance were similar ones of red granite. In the valley of the tombs of the Kings at Thebes Mr. Davis continued his remarkable discoveries. Here was opened a tomb in which were found jewels belonging to Queen Ta-usert, the grand-daughter of Rameses II.

The work in this tomb was rendered especially difficult owing to the fact that the clay with which the chamber had been filled had solidified to the hardness of rock. The tomb apparently was a private one to which for some reason the jewels had been removed. Inscriptions on some of the jewelry prove that Ta-usert was the wife of Seti II. As a fact some objects found had been the property of this King. Such were two epaulets, in the form of poppy flowers suspended from a plate which in turn hangs from a gold bar. On these was Seti's name. Along with these epaulets should be mentioned a couple of silver bracelets, on which are represented Seti seated on his throne with his wife before him. In addition were found a large number of rosettes bearing the names of both the King and Queen. On what appears to be the King's signet ring is a vulture goddess surmounted by a symbol of the sun-god. The decoration was inlaid in precious stones. Still another ring showed the name of Rameses II in open work of gold. Among the jewels of the Queen were hundreds of open-work balls and poppy flowers, which had been strung as a necklace. In the same valley was also found a prehistoric grave containing the embalmed bodies of men of small stature. Near the tomb in which were found Ta-usert's jewelry were discovered the foundations of workmen's huts. These exhibited the interesting feature of a pot set into the floor—to conceal money probably. From a neighboring rubbish heap was taken a bouquet of papyrus blossoms which had been stitched to keep the petals in place.

In the winter of 1907 and 1908 was recovered at Antinopolis two parchment sheets containing thirty lines each from the *Perikeiromene* of Menander. The manuscript which dates from the third or fourth century A. D. bears the original page numbers 51, 52 and 71, 72. Korte finds that these two pieces overlap by 57 lines a portion of the *Lefebvre papyrus*, a fact which identifies the two sheets as surely belonging to the *Perikeiromene*. The second sheet also pieces out the *Oxyrhynchus* fragment of the same play published by Grenfell and Hunt in 1899, following the latter after a gap of about seven lines. So by means of these two new sheets we can get the length of the play—which was about 1000 lines long—and can reconstruct the plot with comparative certainty.

One of the most interesting recent discoveries is that of Brugsch who has found the hieroglyphic record of the seven years' famine described in Genesis. In the inscription it is told how the Nile did not overflow for seven years, and how, as a result, the vegetation withered, the crops failed, and famine, pestilence and misery devastated the country. The date of the inscription is 1700 B. C., which is close to the time given in Genesis.

Grenfell and Hunt recently edited a fragment of an uncanonical gospel from *Oxyrhynchus* and while not written before the fourth or fifth century, it goes back to an original dating before 200 A. D. The bit concerns the Jewish ceremonies of purification in connection with the temple worship. A Pharisee has been angry at Christ and his disciples for neglect of the necessary ceremonies, while he himself was clean. The narrative goes on, "The Saviour answered and said unto him, 'Woe, ye blind, who see not. Thou hast washed in these running waters wherein dogs and swine have been cast night

and day. . . . But I and my disciples, who thou sayest have not bathed, have been dipped in the waters of eternal life."

As a result of the dam at Assuan fifteen temples besides Philæ have been submerged.

GREECE. The Greeks were active in the archæological field during the year. The stupendous task, undertaken by the Greek Archæological Society, of laying bare the Agora and the north slope of the Acropolis at Athens (see YEAR BOOK, 1907) was begun. In the area to the east of the Theseum, from which the houses were removed in 1907, certain walls of ancient date have been uncovered. Unfortunately they cannot yet be assigned to any known buildings, and their place in the complex of buildings which we know to have surrounded the Agora is not to be determined until the remaining portion of this territory, now covered with buildings, is expropriated and rendered accessible to the excavators. The cost entailed by such expropriation is great. Outside of Athens much work was done. At Oropos the Amphiareion was the scene of excavation, and at Chalcis prehistoric tombs were opened. At Charonea a tumulus of the neolithic age was excavated, and among other objects, pottery bearing red decorations on a white ground were taken from it. The resemblance of the pottery to that recovered by the English in Phthiotis proves that the same culture spread over this northern portion of Greece in the neolithic age. From the same tumulus other vase fragments bearing a dull dark, painted decoration were taken. Their style suggests that of ware from Ægina described by Furtwängler as early hand-made Mycenaean ware.

The most notable find made by the Greek Society was at Pagasæ in Thessaly. Here in Roman times a large tower had been constructed around a smaller one of the fifth century, and for filling between the two the builders had made use of hundreds of stelai from a necropolis. The remarkable feature of these stelai of which some thirty complete specimens and over 1000 fragments were found, is that the decoration is painted and not sculptured. The stones date between the fourth and the second centuries B. C., and inasmuch as the list of colors is large and the work not flat but shaded, we have in them one of the best means for reconstructing the art of painting in Greece at the time of their production. Work was continued at Sounion. On both sides of the road leading from the harbor to the temple, houses were discovered, and many votive offerings dating before the Persian war. The Society was also busy at Tegea. At Mycenæ it has excavated and strengthened the so-called tomb of Clytemnestra. To complete the excavation of the site of the Throne of the Amyclæan Apollo, upon which work was interrupted by the death of Furtwängler, the Church of Hagia Kyriaki, which stood on top of the mound, has been removed, and the digging completed.

CRETE continues to offer much of archæological interest. In the spring of 1908 Evans concentrated his efforts at Knossos on what he calls the Little Palace, which lies to the west of the Great Palace. The building proved to be of great size, that is to say, it is over 114 feet along the front and covers an area of something over 9400 square feet. From the evidence offered by the remains of its stone stairways we know that, like the

Great Palace, it was of more than one story. Its date is about 1700-1600 B. C. One of the most interesting finds made on the site was a black steatite vase in the form of a bull's head, found in a chamber sanctuary. The eyes of this remarkable head were of rock crystal hollowed out and colored on the under side to represent the pupil and iris, and the nostrils were inlaid with shell. Another object worthy of notice is a finely carved relief in ivory of a griffin pulling down a bull. In the southwestern part of the Palace, work was continued on a great rock-hewn vault, the size of which may be judged from the fact that excavation has shown the floor of it 52 feet below its dome. Perhaps the most remarkable finds in Crete and its related islands have been made by the American Seager who worked so successfully in 1907 at Psaira. In the island of Mokolós, which is not far from Psaira, he found a Minoan settlement, the history of which falls into two periods. The first ends at the beginning of the Middle Minoan period, the second dates from the end of the Middle Minoan and closes during the Late Minoan. Of these two settlements the earlier is the more important. From six chamber tombs of the older town came a remarkable collection of vases of alabaster, marble, and other stones, some of which are as thin as modern china. From the same tombs were recovered various gold objects, such as diadems, hairpins, chains, etc., of very delicate workmanship. Suggesting an analogy with the seal, recorded in the YEAR BOOK for 1907, which showed a horse in a boat, is a fine gold signet ring on which is shown a boat with the bow in the form of a horse's head. The Greek excavations have shown that the plain of Messará in Crete was thickly populated in the Early Minoan age.

The Italians continued their work at Pharastos. As a result of their labors it is now possible to make out fairly well the plans of the two Minoan Palaces on the site. In connection with the older, which dates from the Middle Minoan period, it was discovered that the Cyclopean substructures of the outer walls were not constructed with an unbroken surface but with rectangular bastions breaking out at intervals. The entrances were guarded by towers of a square plan, and strongly built. The remains thus suggest that Pharastos was not, like Knossos, an unfortified palace, but was like Tiryns well protected and able to withstand assault. The propylaia discovered on this site is the oldest known in Greece. Up to it led a flight of 12 steps over 40 feet broad. Directly in front of the gate was a broad paved area. The gateway itself, which differs somewhat from that at Tiryns, is flanked by two square pillars, while a column standing between them produces a double entrance.

Probably the most important discovery made by the Italians was in the northeastern part of the site during the work of clearing some houses contemporary with the early palace. The find is that of a terra cotta disk about 6 inches in diameter stamped on both sides with symbols in the form of men, fishes, birds, trees, plants, and various utensils. These symbols which number over 120 on each face are stamped, as with type, between lines which run spirally from the centre to the edge of the disk. The archaic temple found by these same archæologists at Prinia

last year, has now been completely excavated with the result that the building is now known to consist of a cella and pronaos. The former was open wholly or in part. The east wall, which supported the heavy frieze, was much thicker than the side walls, which were built of a concrete of mud and small stones. In the middle of the inner chamber was located a rectangular pit lined on its four sides with gypsum plates. Traces of burning in this pit make it evident that this, contrary to the usual custom in Greece, was an altar for burnt offerings. Before this altar was found the base of a cylindrical column. Near this temple was discovered another which had both a pronaos and epinaos. To judge from the remains such as vase fragments and other votive offerings, the date of the temple is the same as the one previously found. In the epinaos which was used as a store-room were found pithoi decorated in low relief. In the temple and near by were also recovered fragments of vases decorated in a manner suggestive of late Mycenaean and early Geometric. This temple, like the other mentioned, had an altar for burnt offerings. These altars may mark the transition from the open air sacrifice of the Mycenaean period to the subsequent altars for bloodless offerings in the classic times.

At Delos the French continued their excavation of the great building which they found last year. It proved to be a hall 36 by 55 meters divided on the inside into six aisles by five rows of nine columns. The building was evidently constructed with a clearstory, and was hypæthral in the middle. The treasures have been completely excavated.

The German excavations at Olympia have brought to light house walls underneath the Pelopion, which demonstrate that the antiquity of Olympia is much greater than has usually been believed. Other excavations on this site have shown that three periods can be made out for Olympia, namely, the classical, geometric, and prehistoric. In the neighborhood of the Heraion, Pelopion, and Metroon a number of prehistoric house walls have been located, of which four are well enough preserved to allow a reconstruction of the ground plan. These buildings ended in an apse of semicircular form. From the hill of Kronos prehistoric and Greek vase fragments have been recovered.

The work of the British School at Sparta produced some interesting results. In investigating the deposit around the old altar found in the arena of the Roman Amphitheatre the English archaeologists found a rich deposit dating in the late sixth and early fifth centuries B. C. Below this came to light the remains of what is doubtless the ancient temple associated with this altar. Although only parts of the foundation remain it can be made out that the building was of sun-dried brick and wood. Its date is believed to be as early as the eighth or ninth century B. C. One of the most interesting results connected with a work of the English at Sparta is the proof that the so-called Cyrenaic ware is but a development of the Laconian ware. Here at Sparta it has been found that the orientalizing style of pottery, which is akin to what has been known as the Cyrenaic, begins after the Geometric, passes through a pre-Cyrenaic into a true Cyrenaic style and degenerates in the fifth century B. C. The British School

also excavated the site of ancient Itonos in Phthiotis. Here a neolithic deposit of great depth was examined from which was taken specimens of hand-made pottery with red decoration on a white ground, of a nature akin to that found by the Greeks at Chæroneia, and in Thessaly. The excavations have shown that the Bronze Age in Northern Greece began much later than in the Southern Ægean.

Dörpfeld, still intent on proving Leukas the ancient Ithaka, continued his work in the plain of Nidri the southern part of which has been thoroughly explored. The remains found in one place, where the water has been led into the plain, Dörpfeld is inclined to believe to be those of a prehistoric garden. In another locality in the plain the German scholar found eight cist graves containing contracted burials. Parallels with this method of interment Dörpfeld sees at Tiryns, Orchomenos, and near Knossos. The pottery found bears a resemblance to that found at Drachmani and recorded in the Year Book for 1907. The objects discovered have led the excavator to the belief that the settlement represented by them was the Achæan city of Homeric Ithaka, and that the inhabitants under the pressure of the Dorians moved to modern Ithaka. Perhaps the most important find for Dörpfeld's theory is that of the remains of a prehistoric building some 30 meters in length which the excavator believes to be the palace of Odysseus. Near by were found graves, the contents of which resemble those of the shaft graves at Mycenæ. To prove that Kakóvatos is the site of the Homeric Pylos Dörpfeld has continued his excavations on that site.

The Americans continued their undertaking of laying bare the site of ancient Corinth. Besides this, their attention was directed to the Propylæa at Athens which they carefully studied with a view to the restoration of the structure.

On the coast of Asia Minor the Germans carried on their excavations at Pergamon. The neighborhood of the gymnasium has been the scene of most of their labors. A temple has been cleared and the base of a group of three statues dedicated possibly to Herakles, Hermes, and Asklepios. Besides this a number of fine halls were laid bare. The inscriptions discovered relate, in some instances, to the ruling house of Pergamon, and in others to the native and foreign epebes. At Miletos work has been initiated with the result that the history of the older portions of the town has been made out from Mycenaean times down to the time of the Persian invasion of 494 B. C. The pottery on the site extends in an unbroken series from the late Mycenaean style down to the Attic red-figured fabric. On the Lion Harbor the building, which was formerly believed to be the Prytaneum has been shown to be a gymnasium for free boys. It was founded about the middle of the second century B. C. by Eudemos, whose gift for the purpose was ten talents of silver. The excavations conducted on the site of the temple of Apollo at Didyma has brought to light a great wall of pre-Hellenic date which served to separate the terraces lying to the east of the Temple.

At Lindus, in Rhodes, the Danes have cleared the town and tombs which they had previously located. Inside the walls of this town two sanctuaries have been discovered, and one outside. The pottery recovered is of importance,

for by it light is thrown on the intimate trade relations which existed between Naukratis and Rhodes.

Among the individual finds made is one which should be recorded. It is that of a terra cotta figurine recently discovered in a tomb, by a peasant it is said, in the neighborhood of Monemvasia. This figurine, about 50 cm. in height, is of interest because of the close likeness which it bears to the famous Aphrodite of Melos, now in the Louvre. If the statue is genuine (some doubts have been expressed on that point) it shows us that the Aphrodite of the Louvre may have held a mirror in her left hand, while she supported her slipping drapery with her right—for such is the position and action of the arms preserved on the statuette.

ITALY. In excavations at Rome conducted at the Arch of Titus, foundations were found which the excavator, Boni, thinks to belong to a structure reared by Romulus. At Ostia a room was excavated on the walls of which were painted single figures at each of the four corners. The floor was paved with black and white mosaic. On it were found ancient money, several amphoræ with painted inscriptions, glass with gold letters, lamps, remains of inlaid furniture, etc. A corridor led to a lower room, the windows of which were evidently glazed with mica. At Nola during the digging preliminary to laying a sewer were found a bust of the Emperor Claudius, a torso of a figure on a cuirass, and a late Latin inscription. At Pompeii in five places were found Oscan inscriptions painted in red about ten feet from the ground on columns of houses. It is thought that they were notices to tell visiting strangers where to find the nearest bankers.

Excavations at Gela in Sicily have shown that this city occupied the site of modern Terra Nuova. A number of notable finds have been made here. Among these may be mentioned sarcophagi with rich decorations painted on them, and an especially interesting vase with a decoration representing a theatre scene. The subject represented is a Satyr play and the two doors of the proscenion are visible one at the right and one at the left. In Sardinia Mackenzie reports the discovery of a number of prehistoric dwellings and graves scattered over the island.

AFRICA. At Dougga the French have discovered a temple of Saturn with a large number of the columns still preserved. A statue of Athena was found whose girdle was ornamented with a head of Medusa. An Apollo nearly ten feet high was also discovered. At Timgad a Byzantine mosaic has been recovered which represents Aphrodite Anadyomene accompanied by a Triton and a Nereid. The work is completely preserved and was found in a house of Trajan's city.

FRANCE. Excavations at Alesia have disclosed a small temple and a square which is surrounded by a portico. This is probably the forum. On the west side of it was found a building with three apses—perhaps a basilica—and several houses with deep cellars of careful construction. Under these remains were traces of a Gallic settlement the buildings of which were round, square, or irregular shaped huts, some with and some without walled foundations. The upper part of these huts was of wattle and daub.

BELGIUM. At Liège traces of a Roman villa were found, and at Trèves one of the most interesting Roman villas yet found has been cleared. It consists really of three buildings, which are connected by curving corridors so that the baths are in one wing and another group of buildings on the other. There are two courts, and the entire plan of the villa has been adapted to the curve of the river at this point.

ENGLAND. Under a church in Dorchester was found a stone, probably placed there by the Norman builders of the church, which bears an inscription reading "To Caius Aristus, Roman citizen, aged 50, Rufinus and Charina, and Avea, his children, and Romana, his wife (or his Roman wife) set up this stone." While excavating for building purposes near Christ's Hospital, London, a portion of the Roman inclosing wall of the city was found, as well as a number of objects, among which were curious bone skates, broad and polished underneath, and pierced with holes for fastening them to the feet.

ARCHÆOLOGY, AMERICAN. See ANTHROPOLOGY.

ARCHBOLD, JOHN DUSTIN. Vice-president and active head of the Standard Oil Company, was born in Leesburg, Ohio, on July 26, 1848, and had a public school education. As early as 1864 he had become interested in Pennsylvania oil fields, especially those of the Titusville region, and his activities there brought him into contact with the Standard Oil Company. In 1872 he was one of the group of producers who attacked the South Improvement Company, a concern controlled by the Standard, and formed, it was openly charged, solely to get from the railroads more favorable shipping rates than could be obtained by other producers, but in 1873 he was one of the supporters of what was then known as the "Pittsburg plan," also a rebate scheme believed to have been fathered by the Standard. Two years later he became publicly identified with the Acme Oil Company of Titusville, reported at that time to be one of the Standard's subsidiary companies, and in this capacity was very active in getting control of oil properties in the neighborhood of Titusville for the Acme company. At this time he became a director of the Standard, and subsequently was made its vice-president. During the presidential campaign of 1908 Mr. Archbold was made conspicuous by reason of certain letters he had written several years before to Senators Foraker, McLaurin and other politicians, copies of which were read at political meetings by William R. Hearst. See **PRESIDENTIAL CAMPAIGN; STANDARD OIL.**

ARCHERY. This sport is under the control of the National Archery Association of the United States. The thirtieth annual tournament took place in Chicago on August 18, 19, 20 and 21. The double York round championship was won by W. H. Thompson, with a total score of 973, the double American round by Robert Williams, with a score of 1007, and the double national and the double Columbia rounds by Miss Harriet Case with scores of 398 and 546 respectively.

ARCHITECTURE. In the minds of architectural scholars one of the most notable events in the architectural record of the year 1908 was an exhibition of archaeological drawings. Mr. H. Hulot, "pensionnaire" holder of the

Grand Prix de Rome in Architecture had been for some time engaged in investigating the ruins of the ancient Greek city of Selinus in Southern Italy. The result, in a superb series of drawings exhibited in Paris, presented a wonderful and surprisingly complete exemplar of an ancient Greek maritime city, its walls, gates, streets, quays, harbor, open spaces, monuments and houses, constituting one of the most important contributions ever made to our knowledge of the civic architecture of ancient times. In the popular mind, however, interest in the architectural progress of the year 1908 chiefly centered in the development of concrete as a material of construction and a medium of architectural expression. In the widening applications of this material, France, the country of its origin, and the United States, appeared to be leading the rest of the world, with Germany and Austria closely following. English conservatism was only slowly entering upon this use of concrete in architecture, although the year has witnessed far more rapid progress in this line than any of its predecessors. It was still, however, in its experimental stage both in the United States and Europe, but tests, formulæ and text books were multiplying and a body of experience has accumulated which would before long lead to concentration of effort along certain definite lines. But little use has so far been made of concrete as a material for external expression in architecture, most designers preferring to conceal it behind brick, stone or marble or to face it with stucco. There can, however, be no doubt that it will in the near future come into wide use for exterior and monumental design, powerfully influencing and perhaps revolutionizing architectural style. Mr. Edison's "monolith" concrete house, produced at one casting, has contributed nothing to this result; for it is of so barbarous a design as not to enter into the category of architecture at all.

In the matter of *style*, the year 1908 showed no marked advances, although the tendencies of previous years continued to manifest themselves. Thus in France the old struggle between the Latin or classic and the Gallic or romantic tendencies continued in evidence. The house on the Rue Benneville in Paris which was awarded the annual prize in 1908 as the best exterior composition was a remarkably refined design in the classic Renaissance spirit by M. Tersling. At the same time the street architecture of hotels, apartments and business houses in Paris was marked by a frequent eccentricity of mass and outline and a studied avoidance of classic precedent which resulted in façades often indescribably ugly, in spite of much exquisite carved detail of flowers and figures. The Art Nouveau movement has by no means produced a real style in architecture, and many of its efforts in this line, especially in Germany, have far overstepped the limits of architectural propriety and entered the domain of the absurd and the grotesque. But there can be no denying that the reflex influence of the movement has been beneficial on the whole, inspiring in those who still adhere to the traditional styles a greater freedom, and in many cases a greater regard for the pure logic of design, than has been common in the past. Perhaps the greatest of all living masters of architectural design in 1908 was Professor Otto Wagner of Vienna, who succeeded to a wonderful degree in blending the

freedom of the New Art with the repose, dignity and beauty of mass and proportion, of the classic styles.

In the United States something of the divergent tendencies noted in France is to be observed in the past year's work, but divided along very different lines. The French form of the style of innovation and protest called L'Art Nouveau did not make its appearance in serious architecture in this country; but the kindred spirit was manifested in a very interesting way, and with results superior to most of its European products, in many places, but especially in much recent work by a group of Chicago architects who may be held to constitute a veritable school, under the acknowledged leadership and inspiration of Mr. Louis H. Sullivan, and among whom may be numbered such men as H. v. D. Shaw, I. L. Wright, Myron Hunt, G. W. Maher and others. Their work displayed vigor, originality and refinement, and was only rarely eccentric in either mass or detail. Largely consisting of suburban and rural dwellings, small and large, it also included not a few striking and important commercial and public buildings, of which the most original is without question a bank by L. H. Sullivan in Ottumwa, Ia.

The division between this and other schools following more traditional lines, is largely geographical. In New York, and indeed throughout the country at large, the work of the year 1908 exhibited the continuance of the previously noted tendency to apply particular styles to particular types of building. The banks and libraries, public buildings for cities, States or the Federal Government, and museums of art, erected, begun or completed in 1908 were almost invariably in some version of the neo-classic styles; while the churches, a large proportion of the educational buildings, and a few commercial buildings were erected in some form or phase of the mediæval styles.

In England, the work of the year showed a tendency towards a severer classical manner in public buildings and monumental works than has sometimes been the case, although the British architects still cultivated more than most of their neighbors the breaking up the main masses into many parts, and a certain complexity of sky line. As usual, the most interesting work of the English architects was in the two departments of ecclesiastical and of domestic architecture, in which they stand, on the whole, distinctly in the lead. The vagaries of Art Nouveau architecture have apparently found no entrance into the British offices.

No great international competitions were announced during the year. There occurred, however, one interesting case of international collaboration—begun, indeed, in 1907, but brought to fruition in 1908—in the Franco-British Exhibition held in London during the six months from May to November. The architectural part of this enterprise, projected by Mr. Kiralfy, was entrusted to an international commission of six architects, three British—Messrs. Delmar, Belcher and Fulton; and three French—Messrs. Toudoire, Coste and Duquesne; besides many assistants. Like other recent exhibitions this one followed American precedents in its series of separate "palaces" of staff, grouped in an elaborate landscape setting in which basins and bridges played an important part. The usual French superiority in this sort of scenic decora-

tive design was by no means clearly manifest except in cleverness of detail. By contrast with the clever work of the British architects in this exhibition, the architecture of the Scottish National Exhibition at Edinburgh, by Walker and Ramsay, appeared tame and commonplace.

Meanwhile, to close the chapter of exhibition architecture for 1908, the directors of the "Alaska-Yukon-Pacific Exposition of 1909," broke the record for forehandedness by the substantial completion ahead of time, of the principal buildings and even of the grounds of the exhibition in 1908, from designs by Howard and Galloway. The site was upon the grounds of the Washington State University at Seattle, and one of the buildings is a permanent structure to be used in the future by the University.

Turning now to the architectural annals of the Old World in detail, the most important occurrence was the eighth biennial meeting of the World's Congress of Architects, which was held at Vienna under the presidency of Herr Otto Wagner, drawing a large attendance from all parts of the world. In the exhibition of photographs and drawings, the American display attracted wide and favorable notice. The Congress debated many subjects, including the ethics and regulation of competitions, concrete construction, the preservation of historic monuments, and passed resolutions urging international or universal protection of copyright in architectural designs, the establishment by all governments of Fine Arts Commissions, and concurrent action to secure access for architects to the great monuments of the art in the Ottoman Empire.

More or less important buildings begun or completed in the German-speaking world included among many others a new Ministry of War at Vienna, by L. Baumann; and in the same city an interesting Handelsakademie (Commercial High School) by Deininger; a palace for the Landtag (Diet) and Ministry at Oldenburg; a town hall at Barmen; a monumental fountain at Düsseldorf, and a number of theatres, savings banks and churches of varying importance. Most of these were awarded to their architects as the result of public competitions. The architectural possibilities of the new art of aviation were suggested by the competition held in Germany for a landing-stage and floating shed for airships (balloons) at Friedrichshafen. At Berlin there was little new construction of first rate importance, though in spite of the widespread financial depression, there was still considerable work done of the everyday sort. We may note one large commercial building, the Passagekaufhaus ("arcade" building) of Franz Ahrens in the New Art style, well designed, but a little cold in effect; and a strikingly effective cold storage warehouse in brick by Max Bucholz. At Charlottenburg a new building for the Superior Court was completed, in a thoroughly Baroque style.

Little or no work of note was reported from Paris for the year. Throughout France generally there has been the usual grist of theatres, hospitals, hôtels de ville and school buildings, displaying thoughtful design in many cases, and marked by the usual finish and refinement of French work, but without any strongly forthcoming product. One of the most important among the building enterprises of the year was the competition for an extensive hospital in

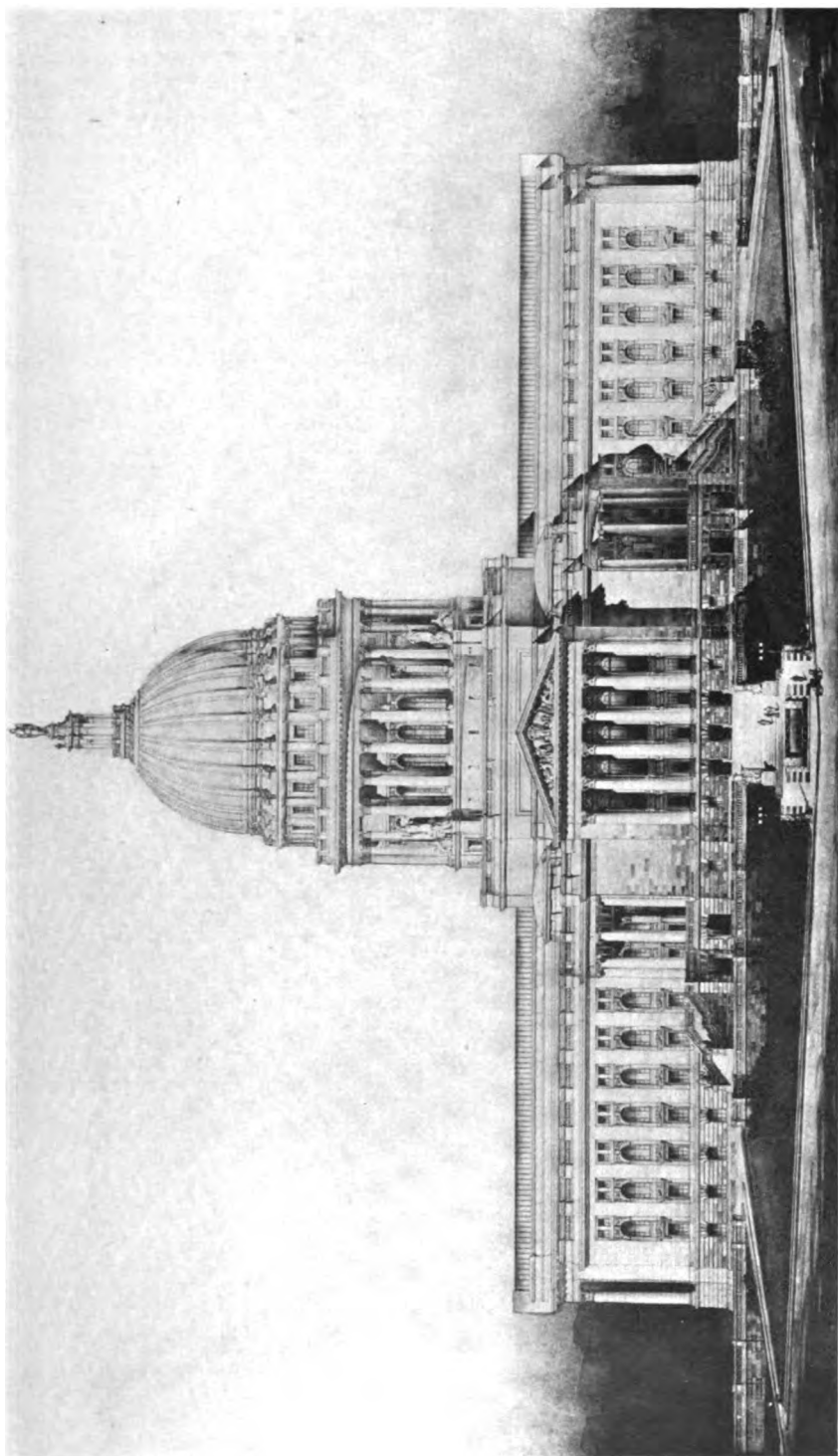
the suburbs of Toulouse, won by M. Quitard. An interesting City Hall in the Moorish style was erected in the city of Algiers by the French Colonial government.

The Hague reported the award of the design for the gardens of the Peace Palace, now in process of erection, to Thomas Mawson of London after a limited competition; and in Denmark an important competition was held for the development of a new outlying suburban district of Copenhagen.

In Great Britain the architectural activity has been considerable. The extensive improvements begun some years ago in London, and which are destined materially to change the aspect of the city—the Aldwych and King's Way enterprises in particular—were actively prosecuted. The first section of the new Public Offices at Westminster, reported a year ago as in process of erection, was completed, and a fine Doric arch or bridge erected to connect it with the Home Office, from a design by Paul Mountford and the sculptor W. S. Frith. The completion of the entire block—an imposing structure measuring 600 by 300 feet and surrounding a noble circular court—it was thought would occupy several years. The architect in charge was Sir Henry Tanner, succeeding the late John Bryden, to whom was due the original design. Sir H. Tanner was also the architect of the important extension of the London Post Office.

The Franco-British exhibition has already been alluded to. The new Piccadilly Hotel was completed from plans by Woodward, Emden, Shaw and Greening, and many commercial buildings of considerable importance. At Cardiff (Wales), the new Town Hall was completed, designed by Lanchester and Rickards; at Leeds, new University buildings by Paul Waterhouse, continuing the general scheme of his father the late Alfred Waterhouse; at Liverpool the imposing building for the Mersey Docks Board Offices, reported last year, was completed after five years' work (Briggs and Wostenholme, Hobbs, and Thornely, architects); at Birmingham the new Council House by Ashley and Newman, for which the competition was held in 1905, and at Bristol a new Central Library by Percy Adams. One of the most extensive architectural operations in Great Britain, the Royal Infirmary at Manchester, was recently completed from designs by Edwin T. Hall and John Brooke; a group of 49 buildings covering 13 acres, and embodying the most recent developments of hospital architecture and equipment.

An interesting development both from the industrial and architectural points of view, was the continued progress of the movement for the erection of what are called "Garden Cities"—manufacturing settlements laid out on artistic plans with detached houses, as illustrated at Letchworth and Port Sunlight. In the field of mediæval archaeology and architecture, always of vital interest in England, attention was called anew during the year to the deplorable condition of Winchester Cathedral, whose foundations, laid in the eleventh century in a boggy soil, were giving way to an alarming extent, threatening the ruin of that venerable fabric. Hereford Cathedral has been adorned with a new west front, by J. Oldred Scott, which was dedicated this past year. From Spain was announced the impending ruin of the noble thirteenth century cathedral of Toledo, which was



From the drawings of the architects, George B. Post & Sons, N. Y.

THE WISCONSIN STATE CAPITOL — WEST ELEVATION

declared to be beyond the possibility of repair.

No very important constructions are announced either from Spain or Italy. The project for the construction of a monumental public square and civic centre at Bergamo, the competition for which was held a year or two since, appeared to have been not yet completed. The Venetian Campanile of St. Mark was carried up thirty or forty feet further towards completion.

SOUTH AMERICA. Coming now to the New World: from South America there was announced a competition for a Governmental Palace for the State of Rio Grande do Sul; from Buenos Ayres, a competition for extensive buildings for the Faculty of Science of the University. There was considerable building in the progressive republic of Mexico, but unfortunately there appears to have been little effort to acquaint architects in the United States with the details of this activity, either in Mexico or South America; and as little interest on the part of American architects to learn what was going on in the architecture of Latin American centres.

CANADA. In Canada building activity was normal and no edifice of first rate importance claims special notice. There has been held, however, a competition for a Parliament House at Regina, the capital of Saskatchewan.

UNITED STATES. In the United States the financial depression of 1907 and 1908 slightly checked, but by no means arrested the architectural activity of the year. Important operations announced in 1907 were continued or carried to completion. The construction of the great Cathedral of St. John the Divine at New York advanced more rapidly than at any previous stage, the four colossal arches which were to carry the tower having been completed and the choir vaulted and roofed. It is regrettable that the completed work should be so inferior to the original designs as it now appears to be. The Public Library in the same city underwent no change externally, the year's work having been wholly upon its interior finish. At West Point, the process of erection of the fine group of buildings by Cram, Wentworth and Goodhue for the United States Military Academy, made notable progress. The State Capitol of Wisconsin at Madison, by George B. Post and Sons, was externally completed. The interesting group of buildings by the same architects for the College of the City of New York, announced a year ago as under way, were completed and were dedicated with impressive ceremonies on May 14.

Of work not previously reported, it is not easy to select the most important from the vast total of buildings and enterprises begun or completed during the year 1908. There were, however, a number of important competitions for buildings or groups of buildings, the account of whose execution will belong to the annals of later years. Two of these were for public buildings of the first magnitude in New York; for the new Post Office to be erected near the new Pennsylvania terminal, and for a new municipal office building close to the Brooklyn Bridge terminal. Both of these were won by McKim, Mead and White. The first was to be a long and comparatively low building, matching with its columnar façade the classic colonnades of the adjacent Pennsylvania Railroad Station by the same architects, under active construction.

The second was a "skyscraper," also of classic exterior. Two other competitions were for educational institutions. Messrs. Palmer and Hornbostel were the winners in that for the vast group projected for the Western University of Pennsylvania, with a design of strictly and severely classical style. It is noticeable that in both the last-named competitions very meritorious designs were submitted in a style based on the Gothic (by Howells and Stokes for the municipal offices, and by Janssen and Abbott for the University of Western Pennsylvania). The other University competition was for the development of the grounds of the University of Minnesota, and was won by Cass Gilbert of New York. The city of Springfield, Mass. awarded the commission for the new City Hall to Messrs. Pell and Corbett of New York, after an interesting competition. The successful design showed two balanced buildings of classic design respectively for the public auditorium and the municipal offices, dominated by a lofty campanile and clock tower—a novel and effective conception. In the same city the fine new library by E. L. Tilton (upon a very inadequate site) was well advanced towards completion. The competition held by the State of New York for a new State Prison at Fort Montgomery was awarded to Mr. Beardsley of Poughkeepsie, but the award was protested and became the subject of litigation.

In the National Capital, the great railway terminal or Union Station by Daniel Burnham was completed; the Agricultural Department building advanced; a fine design adopted for the National Museum by Hornblower and Marshall; and several banks and other semi-public buildings erected or begun. The Federal Government also adopted designs for or began work upon a new Customs House at Baltimore, by Hornblower and Marshall, and a Post Office at New Orleans from plans by Hale and Rogers. Among scores of other enterprises of equal or almost equal importance which lack of space forbids mentioning, the following may be taken as examples; the school group of the Normal and Latin Schools at Boston, Mass., by Peabody and Stearns, Maginnis, Walsh and Sullivan, Coolidge and Carlson; the University Club at Chicago by Holabird and Roche; the new terminal of the Chicago and Northwestern Railway in the same city, with a train-shed 840 feet long, by Frost and Granger; the new theatre on Central Park West in New York by Carrère and Hastings, well advanced towards completion; the new Academy of Music in Brooklyn by Herts and Tallant—an extremely successful work—opened for use in October; new buildings for the Union Theological Seminary, New York, by Allen and Collins, begun; a new wing added to the imposing structure of the Brooklyn Museum of Arts and Science (McKim, Mead and White); new buildings for the University of California, by J. G. Howard, and a new railway station at Scranton, Pa., by K. M. Murchison.

TALL BUILDINGS. "Skyscraper" architecture counted during the year the completion in New York of the Singer Building, a tower 648 feet high, and the erection nearly to completion of its overtopping rival, the Metropolitan Life tower, 700 feet high, while the Equitable Life Company filed plans for a 1000-foot monstrosity, whose erection still remains in doubt. The tendency was thus towards lofty towers cover-

ing only a part of the building site, instead of massive buildings partly surrounding a court.

Municipal improvement has continued to make progress, its greatest single achievement being the completion of the magnificent stone bridge across the Connecticut at Hartford, Conn., with the adjacent quay and park.

NECROLOGY. The necrology of the year included the distinguished architect and Professor of Theory at the Paris École des Beaux-Arts, Julien Guadet, at the age of 71; of J. M. Olbrich, the leader of the German secessionist or "Moderne Kunst" architects; of E. W. Mountford, F.R.I., B.A., born in 1855, in England; of Alfred Stone of Providence, one of the older members of the American Institute of Architects, and of Wm. Martin Aiken, in New York, formerly supervising architect of the U. S. Treasury.

ARC LAMPS. See ELECTRIC LIGHTING.

ARCTIC AND ANTARCTIC EXPLORATION. See POLAR RESEARCH.

ARGENTINA. A republic in South America, consisting of fourteen provinces and ten territories. Area, 1,138,352 square miles. Population (1905) 3,954,911; estimated Dec. 31, 1907, 6,210,428. In 1906 there were 33,964 marriages, 197,861 births, and 103,451 deaths. The eastern provinces of Buenos Ayres, Santa Fé, Entre Rios, and Corrientes are the most thickly settled. The population of the city of Buenos Ayres, the capital of the Republic, at the end of 1907 was estimated at 1,129,286. During the year the birth rate of the city was 34.6 per 1000 of population, and its death rate, 16.4—an exceptionally favorable record. Other important cities, with their populations according to the latest censuses or estimates, are: Rosario (1906), 150,686; La Plata, 80,000; Tucuman, 55,000; Córdoba, 53,000; Bahia Blanca (1906), 37,755; Mendoza (1904), 35,314; Santa Fé, 33,200; Paraná, 27,000; Salta, 18,000; Corrientes, 18,000; San Juan, 11,500; San Luis, 10,500. The number of immigrants in 1907 was 257,924; of emigrants, 138,063. Of the immigrants, 90,282 were Italians, 82,606 Spaniards, 9,530 Russians, 7,436 Turkish, 4,125 French, 3,439 Austrians, 2,322 Germans, 1,659 British, 1,220 Hungarians, 1,118 Portuguese, 1,016 Argentinians, and the remainder, in the order of their numerical importance: Greeks, Swiss, Brazilians, Montenegrins, Bulgarians, Danes, North Americans, Rumanians, Belgians, Moroccans, Dutch, etc. In 1908 the government concluded an arrangement with a German syndicate for colonizing a large area in the Territory of Santa Cruz, in the southern part of the Republic.

EDUCATION. Nearly one half of the population over six years of age are illiterate. In 1907 the total enrollment at the 243 municipal schools of Buenos Ayres was 83,171, the average attendance being 68,183. In the province of Entre Rios, where the children of school age in 1907 were estimated at 83,500, only 46,800 attended school. In 1906 the total number of schools in the country was 5,941, with 16,192 teachers and 557,657 registered pupils. Secondary education is controlled by the Federal government. There are about 20 lycæums and 40 normal schools. For higher education there are national universities at Buenos Ayres and Córdoba; provincial universities at La Plata, Santa Fé, and Paraná; a school of mines, an agricultural college, a naval and a military school, etc.

PRODUCTION. The total area under cultivation in 1907-8 was 36,106,323 acres, of which wheat took up 14,233,158 acres; maize, 6,747,175 acres; linseed, 3,438,371 acres; and oats, 702,000 acres. The production of wheat for the season 1907-8 was 201,502,000 bushels; maize (preliminary estimate), 137,120,000 bushels; linseed, 42,695,000 bushels; and oats, 30,520,000 bushels. The area under rice in 1907-8 was 4352 hectares (1 hectare = 2.471 acres), and the production, about 13,000 tons, nearly all in the husk. In Jujuy some rice is shelled, but by such primitive methods that the product is broken and deteriorated. Sugar, which is protected by high customs duties, is produced mainly in the province of Tucuman. The output of sugar in 1907 was about 109,000 tons, to which Tucuman contributed 91,000 tons. For 1908 the sugar production was estimated at between 115,000 and 120,000 tons. The annual consumption of sugar in the country is between 140,000 and 150,000 tons, so that a considerable amount has to be imported. Wine is produced mainly in Mendoza, in which in 1907 vineyards covered 26,116 hectares, yielding 6,334,937 tons of grapes. The 1908 vintage of Mendoza and San Juan province was reported at about 1,200,000 barrels of excellent quality. Cotton covered in 1907 about 11,475 acres, yielding 7000 metric tons of cotton, or about 3300 bales of 500 pounds each. Silk-worm culture has taken firm root. The total number of mulberry trees is about 11,550,000, of which 5,200,000 are in the province of Santa Fé, 4,500,000 in Córdoba, 1,500,000 in Entre Rios, and over 350,000 in Tucuman, Salta, Jujuy, and Santiago del Estero. In Sept., 1908, a commission was established to study the silk industry and suggest means for its encouragement.

In 1907 the number of cattle was 25,844,800; sheep, 77,581,100; horses, 5,462,170; donkeys and mules, 545,870; goats, 2,566,800; and hogs, 2,841,700. In the southern territories cattle and sheep were increasing in numbers. In March, 1908, the ports were opened for the export of live stock, after having been closed for about a year on account of the foot-and-mouth disease. In 1907 there were exported 74,841 cattle, 7374 horses, and 110,567 sheep. At the beginning of 1907 there were 271 creameries, 18 butter factories, 68 cheese factories, and 37 "mixed" factories. In 1906 the milk used in these various establishments amounted to 168,616,288 litres (1 litre = 1.76 pint), the quantity of butter produced was 8,043,693 kilograms (1 kilogram = 2.205 lbs.), and of cheese, 1,394,292 kilograms. The Province of Buenos Ayres is the centre of the dairy industry. The meat packing industry has assumed large proportions. In 1907 there were slaughtered 931,048 cattle, 2,761,696 sheep, and 12,261 pigs. In the same year there were exported 138,222 tons of beef, 23,781 sheep skins, 1330 goat skins, and 54,375 hides. The export of wool was 154,810 tons.

The northern provinces are rich in valuable woods, and the timber trade should have a bright future. The export of quebracho logs in 1907 amounted to 246,500 tons; of quebracho extract, 28,195 tons. But it is reported that the rudimentary rules of forestry are neglected, that little or no provision is made to replace felled timber, and that deforestation is progressing at an alarming pace.

MINERALS. The mineral production of the republic of Argentina is quite insignificant. There are a few copper mines being worked, but it is said to be doubtful if more than one or two will prove remunerative. Coal has not been found, and experts seem to agree that the geological formation of the country precludes the probability of its existence in a serviceable form. Manganese has been found in considerable quantities, but in places where at present it cannot be worked profitably. Some rich lead pockets have been discovered. Tin ore of an inferior quality exists in the Province of Catamarca. Gold has been found in the territory of Neuquen. In the absence of coal, the industrial future of the country depends on the development of the petroleum deposits, which have been found in the north, in the province of Salta and Jujuy, at the foot of the eastern Cordilleras toward Chaco, and in the southern parts of Mendoza and Neuquen. In 1907 there were exported 33,350 kilograms of tin, 127,528 kilograms of iron ore, 3443 kilograms of silver ore, and 990,000 kilograms of borate of lime.

MANUFACTURES. Manufacturing, as in other South American countries, is in its infancy, and its development is greatly hampered by the lack of fuel. At the end of 1907 there were 350 flour mills, of which 60 were closed. The production of flour amounted in 1906 to 699,000 tons, and in 1907 to 677,536 tons. In 1907 there were exported 127,499 tons of flour to Brazil, which took nearly 93 per cent. of the entire flour export. The first glucose factory was recently opened at Baradera, Province of Buenos Ayres. There are a few small cotton spinning factories, some 200 tanneries, and about 100 shoe factories. In March, 1908, there was established at the town of Bruga, Province Entre Rios, a factory for the manufacture of rope and cord out of a fibre extracted from the wild palm called *caranday*. This is the first rope manufacturing establishment in the country. There is one factory for making cottonseed oil.

FOREIGN COMMERCE. The imports and exports, exclusive of coin and bullion, in 1906 and 1907 were as follows, in gold pesos (1 peso = \$0.965) :

	1906	1907
Imports	269,970,524	285,860,683
Exports	292,263,829	296,204,369

The import of gold and silver in 1907 amounted to 23,552,726 gold pesos, and the exports to 3,133,886.

The leading imports in 1907 were, in gold pesos: Foodstuffs, 20,915,396; tobacco, 5,010,491; wines, spirits, etc., 12,633,739; textiles, 47,333,191; oil, 8,084,771; chemicals and drugs, 8,188,495; timber and appliances, 6,360,043; paper and appliances, 5,702,264; hardware, 33,161,139; metals and appliances, 7,543,106; agricultural implements, 18,541,569; railway materials, 52,320,750; ceramic products, 20,634,552; building materials, 23,020,393. The export classes in 1907 were valued as follows, in gold pesos: Agricultural products, 164,091,621; pastoral products, 123,820,205; forest products, 5,342,357; game products, 829,559; mineral prod-

ucts, 565,039; various, 1,155,588. Among agricultural products wheat figures for 82,727,747 pesos, the total shipments aggregating 2,080,802 tons; linseed, 36,081,221 pesos, with 763,736 tons; oats, 3,593,397 pesos, with 143,566 tons; and maize, 23,711,708 pesos, with 1,417,007 tons. Among pastoral products are included live stock, mostly cattle, valued at 3,158,856 pesos, and tallow, 4,806,835 pesos.

The trade in 1907 with the principal countries of origin and destination is shown in the following table, in gold pesos:

From and to	Imports	Export
Germany	45,811,170	36,423,056
Austria-Hungary	2,394,660	751,974
Belgium	15,896,850	29,592,133
Spain	7,294,469	1,935,605
France	25,468,026	37,762,046
Italy	24,003,241	5,219,466
Netherlands	1,762,006	4,174,490
Great Britain	97,935,743	53,716,152
United States	38,842,277	10,940,436
Brazil	7,849,355	14,018,431
Uruguay	2,472,754	1,376,638

The value of imports from the United States represents 13.6 per cent. of the total value of imports, against 14.62 per cent. in 1906. The exports to the United States represent 3.7 per cent. of the total value of exports, against 4.56 per cent. in 1906. During the first nine months of 1908 imports declined slightly, but exports showed a considerable advance.

SHIPPING AND NAVIGATION. Direct Danish and Swedish lines to Argentina have been inaugurated. The Dutch Parliament voted a subvention for a national line to Argentina. In 1907 two Austrian ships arrived freighted with Austrian goods. A bill was prepared for the approval of the Argentine Congress, providing that river and coastwise trade must be carried on under the national flag. The German "Hamburg-South American" line, which has a regular service down the coast from Buenos Ayres to Punta Arenas, sails under the Argentine flag. The registered Argentine shipping (of over 100 tons) consisted in 1907 of 169 steamers, of 63,632 net tons, and 74 sailing vessels, of 27,155 net tons.

INTERNAL COMMUNICATIONS. At the end of 1907 there were 13,672 miles of railway in operation, 912 miles having been added in course of the year. The total capital invested in railways amounted at that time to 671,688,874 gold pesos; the profits for the year were 33,326,000 gold pesos. Of the 22 railway companies, 18 were English, 1 French, and 3 owned by the government. Towards the end of 1907 the railway from Jujuy to Quiaca, on the Bolivian frontier, 176 miles long, was opened. This is an extension of the Northern Central Railway, which is owned and operated by the government. On Jan. 17, 1908, the governments of Argentina and Bolivia exchanged ratifications of the convention of May 18, 1907, under the terms of which the Northern Central Railway was to be extended into Bolivian territory and a railway constructed from Tupiza, on the frontier, to Potosi. Preparations for the 55 mile extension in southern Bolivia from Quiaca to Tupiza had been begun. The length of the national telegraph lines in 1906 was 15,560 miles.

BANKS. The condition of the 17 banks in the country, including the Argentine National Bank, on March 31, 1908, was as follows, in pesos:

	Gold	Paper
Deposits	22,108,028	739,285,738
Discounts and Loans	37,530,489	683,287,669
Cash on Hand	33,007,739	215,272,714

Compared with Dec. 31, 1907, every one of these items shows a decrease on the gold side of the account, and the cash on hand shows a decrease also in the paper currency. The National Bank was founded in 1891 with a capital of 50,000,000 paper pesos. The net profits are added to the capital and reserve fund, which amounted in 1907 to 53,773,388 pesos paper and 3,695,796 pesos gold. In June, 1908, a law was adopted authorizing the President of the Republic to issue bonds of the internal or external debt, bearing not over 5 per cent. interest, to the amount of 17,800,000 gold pesos, for the purpose of increasing the capital of the National Bank. At the end of 1907 this bank had 104 branches throughout the country. The investments of British capital in Argentina were estimated in 1908 as follows: Government bonds, £70,394,773; municipal bonds, £2,990,680; railways, £137,845,844; banks, £3,580,000; tramways, £8,010,982; various companies, £20,910,584. Total £243,732,863, against £199,213,885 in 1905.

FINANCE. The budget of 1908 estimated the total revenue at 57,830,105 pesos gold and 83,766,359 pesos paper, and the expenditure at 24,450,259 pesos gold and 155,931,230 pesos paper (the paper peso is worth about half the gold peso). The principal estimates of revenue were: Customs, 50,700,000 gold; stamps, 8,800,000 paper; railways, 10,200,000 paper; posts and telegraphs, 8,600,000 paper; sanitary service, 7,100,000 paper. The principal estimates of expenditure were: Public debt, 23,256,390 gold and 19,179,937 paper; justice and instruction, 28,160,778 paper; army, 18,493,098 paper; navy, 17,088 gold and 14,500,076 paper; public works, 500,000 gold and 21,054,944 paper. The public debt stood on Dec. 31, 1907 at 375,017,815 gold and 664,724,627 paper pesos, consisting of an external debt of 319,512,115 gold, an internal debt of 55,505,700 gold and 98,502,240 paper, a floating debt of 34,064,123 paper, and paper money, 532,158,264 pesos.

ARMY. The army consists of a national militia with compulsory service for all citizens from their twentieth to their forty-fifth year, divided into three periods as follows: 10 years in the active army, 10 years in the national guard, and 5 years in the territorial guard. The period of training in the ranks, however, consists of only one year, and this is only exacted of a small proportion of the contingent, the remainder being excused after three months active training. The infantry is armed with a Mauser repeating rifle, the cavalry with a carbine of the same system, and the artillery with the Krupp 7.5 cm. gun.

The peace strength of the active army in 1908 was 1452 officers and 16,687 men. The war strength of the first line is 170,000, of whom 126,000 have had military training from three

months to two years; of the national guard, 215,000 of whom 90,000 have received some training; the territorial guard, 68,000.

NAVY. The effective navy consisted, at the beginning of 1908, of 3 armored coast defense vessels, aggregating 9100 tons; 4 armored cruisers, 28,300 tons; 4 protected small cruisers, 12,700 tons; 5 destroyers, 1750 tons; 24 torpedo boats, 1110 tons, giving a total of 40 ships and 53,050 tons. The increase in 1907 was 220 tons. The crews numbered 5184. About 2000 naval conscripts are levied annually for two years' service. Argentina advertised during 1908 for bids on two battleships of the Dreadnought type; and 18 destroyers and torpedo boats. This was her answer to Brazil's building programme.

GOVERNMENT. The Constitution of the republic is modelled, in the main, on that of the United States, the provinces of Argentina corresponding in their governmental functions to the States of the Union. The President and Vice-President of the republic are elected for six years by electors representing the provinces. The Senate is composed of 30 members, two from each province and two from the capital. The House of Deputies consists of 120 members, the Constitution providing that there shall be one deputy for each 33,000 inhabitants. The President of the Republic in 1908 was Dr. José Figueroa Alcorta, formerly Vice-President, who assumed office on the death of President Quintana in March, 1906.

HISTORY. Congress met on May 11, 1908. In 1907 Congress had refused to vote the budget, and this refusal was repeated in the special session summoned in November of that year. Thereupon the President, Dr. Alcorta, with the consent of the Cabinet, dismissed Congress, and by extra-constitutional executive decree declared the previous year's budget in force. A few weeks before the meeting of Congress, an unsuccessful attempt was made to kill the President by a bomb. On May 11th the President addressed his annual message to Congress, but it contained little of importance aside from a review of financial and industrial conditions, which were declared to be satisfactory. Among the measures passed by Congress was one for the increase of the navy (August), providing for two battleships of 20,000 tons, and several destroyers. Although the army and navy estimates amounted to \$60,000,000 the Minister of Finance declared that no extra taxes on land were necessary, and that the expenditures could be met from the revenue. In September, Congress authorized the improvement of the port of Buenos Ayres, appropriating \$27,000,000 for that purpose. Earlier in the year an application was made to the government for the grant of 11,000 square miles in the southeastern part of Argentina for German colonization. Immigration during the year appeared to be on the increase. In the first two weeks of November the immigrants landing at the port of Buenos Ayres numbered 17,000, a larger number than ever before within the same period of time.

In 1907 the principal events in foreign affairs had been: The conclusion of a treaty of general arbitration with Italy at The Hague, on September 18th, 1907; the consideration of various treaties with Chile by a special commission named by each government for that purpose; closer and more friendly relations with Paraguay, which joined with Argentina in

a project for dredging Paraguay River and rendering it navigable; the approval of the Postal Convention of Rome; the railway convention with Bolivia, whereby the Northern Central Railway was to be extended into Bolivia and a railway constructed from Potosi to Tupiza; the representation of Argentina in The Hague Peace Conference, the Pan-American Conference and the Jamestown Exposition; and the starting of a movement for holding an international conference at Buenos Ayres in 1910 for the purpose of making the international code uniform. The leading event in foreign affairs during 1908 was the conclusion of a treaty of general arbitration with Brazil, to decide all controversies that the contracting parties should not have been able to settle by direct negotiation. If it was decided to submit a question to an arbitral tribunal, that court was to be constituted as follows: Each government to appoint a member, and to try and agree upon a third; if they failed to agree, the President of the Swiss Republic to be requested to make the appointment.

ARGENTINA ANT. See ENTOMOLOGY.

ARID LANDS. See DRAINAGE; IRRIGATION.

ARIZONA. A Territory of the Southwestern United States. Its area is 113,956 square miles, of which but 116 square miles are under water. The population in 1900 was 122,931. According to Federal estimate the population in 1908 was 150,682. The capital is Phenix.

MINERAL RESOURCES. The chief mineral products of the mines of Arizona are copper, gold, silver, and lead. According to the figures given by the United States Geological Survey, the total value of the mineral products of the Territory in 1907, was \$56,753,650 as compared with a value of \$56,365,889 in 1906. In copper mining Arizona ranks third among the States, being surpassed only by Montana and Michigan. The production of copper in 1907 was 256,778,437 pounds valued at \$51,355,687. This was a slight decrease from the production of 1906, which was 262,566,103 pounds, valued at \$50,675,257. The production of copper shows a remarkable increase over 1900 when it amounted to only 188,317,754 pounds. About one-half this product came from Cochise County. The copper product equals about one-fourth the total output of the United States. In 1907 gold was produced to the value of \$2,664,000 from 128,871 fine ounces. The production of silver was valued at \$1,916,000 from 2,913,000 fine ounces. The other mineral products of the Territory which are as yet relatively inconsiderable are lead, valued in 1907 at \$248,040; stone \$237,110; lime, precious stones, stone, tungsten and zinc. The estimates for the mineral production of the Territory in 1908 indicate an increased copper output over 1907. It is probable too that the production of gold and silver will show a slight increase. Early in the year the smelters which had reduced operations regained their normal output, and later increased it. There were seven active smelters operating in Arizona in 1908. The Bureau of the Mint estimated the gold production of the Territory in 1908 at \$2,344,308. The silver production was estimated to be 3,046,137 fine ounces.

AGRICULTURE AND STOCK RAISING. The area of agricultural land assessed for taxation in Arizona in 1908 was about 1,500,000 acres. The area actually under cultivation is little in ex-

cess of 200,000 acres, the greater part of which is in Maricopa County and the Salt River Valley. Cultivation is carried on largely by irrigation. The acreage, production and value of the principal crops in 1908, according to figures of the United States Department of Agriculture were as follows: Corn, 430,000 bushels, valued at \$454,000 from 13,000 acres; spring wheat, 400,000 bushels, valued at \$480,000 from 15,000 acres; oats, 144,000 bushels, valued at \$107,000 from 4,000 acres; barley, 1,102 bushels, valued at \$1,937,000 from 29,000 acres; hay, 330,000 tons, valued at \$4,026,000 from 103,000 acres. Fruits of all kinds, both temperate zone and sub-tropical, are grown on a small scale in the State. Farm animals on Dec. 31, 1908, numbered as follows: Horses, 110,000; cattle, 663,000; sheep, 4,978,000. The numbers of cattle and sheep have increased notably in the last few years, the increase of sheep being nearly 50 per cent. in three years. The estimated value of the wool shipped in 1908 was \$855,400.

MANUFACTURES. A comparison of those establishments classed as factories, showed that they numbered 154 in 1900, with an average of 3126 wage-earners, and products for the year valued at \$20,438,987, while in 1905 they numbered 169, with 4793 wage-earners, and products valued at \$28,083,192. During this period the capital invested in such establishments increased 51.3 per cent., being \$14,395,654 in 1905. The value of the products of leading industries in 1905 and, in parentheses, the per cent. of increase since 1900, were as follows: Smelting and refining copper, \$22,761,981, or 81.1 per cent. of the total value of all industries (31.6 per cent. increase in value since 1900); railway shop work, \$1,329,308 (49 per cent.); lumber and timber products, \$960,778 (75 per cent.); and flour and grist mill products, \$743,124 (65.8 per cent.). In copper smelting and refining, Arizona ranked fourth among the States in 1905. The manufacture of wooden packing boxes has become of considerable importance.

EDUCATION. The report of the Superintendent of Public Instruction for the year ending June 30, 1908, showed the number of school children between the ages of 6 and 21 years as 34,299, as against 33,169 in 1907. Of these there were enrolled in public schools 26,314, and there were enrolled in high schools 709. There were in the Territory 5,463 children of school age who did not attend any school. The average daily attendance in the public schools was 16,386, as against 15,352 in 1907. The number of school districts in the Territory increased from 293 in 1907 to 301 in 1908. There were in the Territory 431 primary schools, 194 grammar schools, and 8 high schools. In 1908 there were 536 female teachers and 109 male teachers. The average monthly salary of men teachers was \$99.50 and for women teachers, \$75.06. The total receipts for school expenditures in 1908 were \$814,062 as against \$697,762 in 1907. There was expended during the year for public school purposes \$811,473, as against \$620,254 in 1907. In addition, there was expended for the education of the deaf, dumb and blind \$1,650; for the maintenance of the University, \$37,851; for the maintenance of Normal Schools, over \$60,000; and for the erection of buildings at the Tempe Normal School, \$37,284. The total amount expended for education in the Territory in 1908 was \$964,427.90, as against

\$701,102.02 in 1907. The valuation of school property increased from \$1,158,335 in 1907 to \$1,409,788 in 1908. The cost of education per capita of school population was \$18.16 in 1908 as against \$14.50 in 1907. There were in the school libraries in the Territory 26,015 volumes.

FINANCE. The Treasury held a balance of \$365,015, June 30, 1907. The receipts for the fiscal year following were \$828,827.58, and the disbursements \$753,667.50, leaving a balance of \$103,283.68 on June 30, 1908. The chief expenditure during the year was for public school purposes, \$811,473.08. The territorial debt, July 1, 1908 was \$1,012,972, and the city and county indebtedness \$2,100,303. The only provision for the debt at that time was that made in 1907 for the retirement of \$78,000 in 1913. There is also a redemption fund to redeem World's Fair bonds in 1912, amounting to \$30,000. The total value of taxable property in 1908 was \$80,637,541.49.

CHARITIES AND CORRECTIONS. The most important correctional and charitable institutions of the State are the Territorial Prison at Yuma, and the Territorial Reform School at Carson. The Territory has no department of charities and corrections. The Associated Charities of Phoenix does important work.

TERRITORIAL OFFICERS. Governor, Jos. H. Kibbey; Secretary, John H. Page; Treasurer, E. E. Kirkland; Auditor, John H. Page; Adjutant-General, J. H. McClintock; Attorney-General, E. S. Clark; Superintendent of Education, R. L. Long—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Edward Kent; Associate Justices, Richard E. Sloan, Fletcher M. Doan, John H. Campbell, Fred'k. S. Nare; Clerk, Shelby M. Collum—all Republicans.

The Legislature of 1909 is composed of 10 Democrats and 2 Republicans in the Council and 17 Democrats and 7 Republicans in the House. The Congressional representation will be found in the article UNITED STATES, section *Congress*.

ARKANSAS. One of the South Central Division of the United States. Its area is 53,335 square miles of which 810 square miles are water. The population in 1900 was 1,311,564. According to the Federal estimate the population in 1908 was 1,458,246. The capital is Little Rock.

MINERAL RESOURCES. The chief mineral production of Arkansas is coal. According to the figures of the United States Geological Survey, there were produced in 1907 in the State 2,670,430 short tons of a spot value of \$4,473,693. This year was the most prosperous in the history of coal mining in the State. During 1905 and 1906 the coal mining industry of Arkansas was in a very unsatisfactory condition. Since 1903, when the production was 2,229,172 short tons, the output decreased each year until in 1906 it amounted to only 1,864,268 short tons, valued at \$3,000,339. The production in 1907 exceeded that of 1903 by 441,266 tons in quantity, \$1,112,862 in value. With the exception of Michigan the Arkansas percentage of increase in coal production over the previous year was the highest in any of the coal producing States. The decreased production in 1906 was due in part to the suspension of mining operations pending the settlement of the wage question. During a portion of that year nearly all the

mines in the State were shut down, and 3,828 out of a total of 4,298 men employed were idle during the year. In 1907 there were 1,185 men idle for an average of 30 days. The coal mines of Arkansas gave employment in 1907 to 5,085 men and the average production per man was 525 tons in 1907 against 433.8 tons in 1906. Practically all the mines in the State are operated on the basis of the eight hour day. The total original supply of coal in Arkansas was 1,887,000,000 short tons, of which 1,797,000,000 were bituminous and semi-anthracite and 90,000,000 were lignite. The lignite areas have not been developed and no production is reported from them. From the bituminous and semi-anthracite areas there had been mined at the beginning of 1908, 23,756,401 short tons, representing about 2 per cent. of the estimated original contents of the Arkansas field. It is estimated that the production of coal in the State in 1908 decreased between 25 and 35 per cent. from the production in 1907. Other mineral products of the State are bauxite, which was produced in 1907 to the value of 50,267 long tons; clay products, which were produced to the value of \$536,286; iron, lime, and limestone. That diamonds have existed in Arkansas has long been known and systematic search has been made for them for several years. Up to February, 1908 some 140 diamonds had been found in the State, with an aggregate weight of about 200 carats. The largest ones weigh 6½ carats, though the average size compares favorably with the general run of most of the South African diamonds. There is a large proportion of white stone, many of which are free from flaws and are very brilliant. Some of the yellow diamonds are also of exceptional quality and color. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the total mineral production of the State in 1907 was valued at \$6,386,747 as compared with a value in 1906 of \$4,933,899. See COAL, IRON AND STEEL; DIAMONDS.

AGRICULTURE. The acreage, production and value of the principal crops, except cotton, in 1908 were given by the United States Department of Agriculture as follows: Corn, 54,035,000 bushels, valued at \$35,663,000 from 2,675,000 acres; winter wheat, 1,620,000 bushels, valued at \$1,539,000 from 162,000 acres; oats, 3,702,000 bushels, valued at \$1,962,000 from 173,000 acres; rye, 20,000 bushels, valued at \$19,000 from 2,000 acres; rice, 467,400 bushels, valued at \$430,008 from 11,400 acres; potatoes, 2,460,000 bushels, valued at \$2,116,000 from 30,000 acres; hay, 267,000 tons, valued at \$2,896,000 from 198,000 acres. The cotton crop of 1908-9 is estimated at 1,009,000 bales as compared with 796,000 bales in 1907-8. The most notable development in the agriculture of the State during the last few years is the increase in the acreage of corn, which has almost doubled in seven years. Although rice is a comparatively new crop in the State, a considerable area in the southeastern part of the State is devoted to its cultivation. The number of farm animals on Dec. 31, 1908 was reported as follows: Horses, 293,000; mules, 217,000; milch cows, 388,000; other cattle, 674,000; sheep, 253,000; swine, 1,150,000. The number of horses and sheep have remained almost the same for several years. Other cattle have increased consider-

ably, while swine have decreased nearly 30 per cent. during the same period. The estimated value of the wool clip in 1908 was \$214,391.

MANUFACTURES. Though Arkansas is not prominent in manufacturing, very notable progress has been made in this industry since 1900. In the industries covered by the census of 1905 which were comparable with those covered by the 1900 census, there was shown an increase of 82.4 per cent. in the amount of capital invested, of 5 per cent. in the average number of wage earners, of 42.8 per cent. in the amount of wages paid, and of 35 per cent. in the value of products. The value of the products of the six leading industries in 1905, with the per cent. of increase over the value of 1900, were as follows: Lumber and timber products, \$28,065,171 (15.4 per cent.); cottonseed oil and cake, \$4,939,919 (54.7 per cent.); planing mill products, \$3,786,772 (70 per cent.); flour and grist mill products, \$3,702,495 (35 per cent.); railway shop work, \$3,077,537 (49 per cent.); printing and publishing, \$1,443,138 (43 per cent.). Cotton manufactures have not developed to any considerable extent. The number of active spindles in the State increased from 13,844 in 1905 to 14,324 in 1908, and the quantity of raw cotton consumed increased from 3408 bales to 4143 bales during the same time.

EDUCATION. Under a special amendment of the Constitution, the Legislature of 1907 passed a measure providing for an increase in the State school tax from 2 to 3 mills, and for allowing school districts to increase their tax from 5 to 7 mills. A State Normal School was also provided for. This is situated at Conway, and was opened in 1908. According to the statement furnished by the State Superintendent, the total school population (children of ages 6 to 21) June 30, 1908, was 544,519, which was an increase of 10,676 over the figures for 1907. The enrollment for the year was 366,054, an increase over 1907 of 25,872. The average daily attendance was 232,670, an increase over 1907 of 12,049. Nearly 30 per cent. of the school population is colored. The average number of days taught in the public schools in 1908 was 93.9. Although the average number of days increased from 77.4 in 1900 to 88.3 in 1905, this State has still the shortest average period of school days of all the States. The amount expended for public school purposes for the year 1908 was \$2,537,122.42. The number of teachers employed in the State in 1908 was 8,297.

FINANCE. The statement of the State Treasurer showed that the total receipts of the Treasury for the fiscal year of 1908 were \$2,616,164.15, and the total expenditures for the same period were \$2,678,428.29, leaving a balance on Sept. 30, 1908 of \$1,130,344. The principal sources of revenue are the State tax, (28 per cent.); liquor licenses, (8 per cent.); school tax, (40 per cent.). The total State tax rate is $6\frac{3}{4}$ mills, divided as follows: State general revenue, $1\frac{1}{4}$ mills; schools, 3 mills; pensions, $1\frac{1}{2}$ mills; capitol, $\frac{1}{2}$ mill. The State owes no floating or outstanding indebtedness. It has invested \$1,250,500, permanent school funds, in its own bonds, and holds the bonds in trust. The State school fund, which is the common school fund, amounted in 1908 to \$1,018,250.53, or \$1.87 per capita to each child of school age (six to 21 years). The Confederate pension fund, apportioned on Septem-

ber 1, 1908, was \$466,688.50. The State taxes each saloon in the State the sum of \$300 per annum.

CHARITIES AND CORRECTIONS. The State charitable institutions are the Arkansas Hospital for Nervous Diseases, the Arkansas School for the Blind, the Arkansas Deaf and Dumb Institute, the Arkansas State Penitentiary, the Arkansas Federal Soldiers Home, and the Arkansas Reform School, all at Little Rock. In the Arkansas Deaf and Dumb Institute there were in 1908, 325 pupils. Appropriations made by the Legislature of 1907 amounted to about \$187,000. Industrial trades of various kinds are taught the inmates of this institution.

POLITICS AND GOVERNMENT. There was no regular session of the State Legislature in 1908. During the absence from the State of Acting Governor Pindall, A. H. Hamiter, speaker of the House of Representatives, assumed the duties of governor and called an extra session of the Legislature. Governor Pindall immediately returned to his office and issued a proclamation revoking the call. A number of members of the Legislature responded to the call for an extra session, but a majority remained at home in compliance with Governor Pindall's proclamation and as there was not a quorum, no session was held. Several suits were filed during the year against the Waters-Pierce Oil Company, charging violation of the anti-trust law of the State. Certain of these suits were terminated on July 27, when the attorneys for the defendant company paid a compromise penalty of \$10,000. Arkansas, in common with several of the other Southern States, experienced incipient "night rider" manifestations in certain regions. There was apparently no regular organization in Arkansas, but individual efforts were made to intimidate cotton growers and ginners into holding the crop of 1908 for a higher price, principally by the posting of threatening notices. On Sept. 19 the State and the railroad commissioners were enjoined from enforcing the two cent rate law and the commission's freight tariff.

CONVENTIONS AND ELECTIONS. The Republican State Convention met at Hot Springs and on April 28th adopted resolutions directing the delegates to the National Convention to cast their votes for Taft. The administration of President Roosevelt was endorsed. The Democratic State Convention met at Little Rock on June 2, by unanimous vote adopting resolutions instructing for Bryan for President. A notable feature of the Convention was the defeat of Senator Jeff Davis for delegate-at-large to the National Convention. He received only 196 of the 550 votes cast. At the Democratic primary election held on Mar. 26th, George W. Donaghey, Faulkner County, was nominated for governor by a small plurality. At the State election held on Sept. 14, the Democratic candidate, Donaghey, was elected over John I. Worthington, the Republican nominee, by about 60,000 votes. Judge Worthington ran on the State-wide Prohibition platform, while Mr. Donaghey insisted that prohibition was not an issue, but that he would recommend submission of the question to the voters of the State at the next Legislature. An amendment authorizing cities and counties to issue bonds for public improvements was defeated, but a poll tax amendment to the constitution received a safe majority. Several thousand more votes were

cast "against license" (of saloons) than "for license," but each county voted on this question separately, as is done every two years. The State Democratic platform recommended that the question of State-wide prohibition be submitted to the people in 1909, and a bill has been introduced in the Legislature to carry out this recommendation. The vote at Little Rock was double that of 1906, yet the saloon majority was reduced 500. The prohibitionists gained two counties in the State. In the election of Nov. 3, the State vote for the national candidates was as follows: Bryan, 87,015; Taft, 56,624; Watson, 1,121; Debs, 5,750. For governor Donaghey, Democrat, received 111,478 votes, and Worthington, Republican, 45,400.

OTHER STATE EVENTS. During June considerable damage was caused by floods in various portions of the State. In November repeated rises in the Arkansas River caused the bank to cave at Pine Bluff and threatened the destruction of several important buildings. It was found necessary to blow away a point of land on the opposite shore in order that the caving of the banks might be stopped. The blowing away of this point resulted in a diversion of the current and the danger passed temporarily.

STATE OFFICERS. Governor, George W. Donaghey; Lieutenant-Governor, X. O. Pindall; Secretary of State, O. C. Ludwig; Treasurer, James L. Yates; Auditor, J. R. Jobe; Attorney-General, Wm. F. Kirby; Superintendent of Education, Geo. B. Cook; Commissioner of Agriculture, Guy B. Tucker; Commissioner of Insurance, A. E. Moore; Commissioner of Public Lands, L. L. Coffman—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Joseph M. Hill; Justices, Edgar A. McCulloch, C. D. Wood, Burrill B. Battle, and Jesse C. Hart; Clerk of the Court, P. D. English—all Democrats.

The legislature of 1909 is composed of 35 Democrats in the Senate, and 95 Democrats and 5 Republicans in the House. The State representatives in Congress will be found in the section *Congress* in the article UNITED STATES.

ARMIES. See MILITARY PROGRESS, and articles on countries.

ARMÍJO, DON ANTONIO AGUILAR Y CORREA, Marquis de la Vega, de. Former Spanish Premier, and President of the Spanish Chamber of Deputies, died at Madrid, on June 13, 1908. He was born at Madrid on June 24, 1824, studied law, and entered public life in 1855; was a member of the Union Liberal Cabinet of O'Donnell and, was successively civic governor of Madrid, Minister of Public Works and Home Secretary. He was one of the instigators of the revolution of 1868 and was a monarchical member of the Cortes for Cordova; but he became especially well known as Ambassador to France, in which capacity he frequently made himself conspicuous, during the uprising of the Carlists (who were believed to be getting much sympathy from the French Government) by his firm insistence upon the full recognition of Spain at the French capital. Upon the fall of the Moret Ministry in December, 1906, Armijo formed a "Liberal Union" Cabinet which, however, lived only until the 25th of January following, when it was succeeded by the Maura Ministry. See SPAIN.

ARSENIC. The output of arsenic in the

United States in 1907 according to the statistics of the United States Geological Survey was 1751 short tons valued at \$163,000, as compared with 737 short tons valued at \$63,460 in 1906. The American arsenic industry, however, is in comparative infancy as imports amounting to 5164 short tons valued at \$574,998 were required in 1907 in addition to smaller amounts of Paris green, London purple and sheep dips. The principal producing countries of the world are Germany, Spain, Portugal, France, England, Turkey and Canada. The price of white arsenic which varied from 5 to 8 cents per pound in 1907 was considerably less in 1908 ranging from 5.125 cents in February to 3.125 cents at the end of the year. The American production is obtained largely from smelting ores containing arsenic, and in 1907 and 1908 work was done at Carmel, New York, where ore in the form of arsenical pyrites was mined and after the low grade material was concentrated so as to average 25 per cent. arsenic it was shipped to England for reduction. The waste of arsenic in the form of fumes at a single copper smelter in Montana would more than equal the combined production and imports in the United States each year.

ARTILLERY. See MILITARY PROGRESS.

ASBESTOS. See MINERAL PRODUCTION.

ASHANTI. A British colony in West Africa, practically a part of the Gold Coast Colony (q.v.). Area, about 10,000 square miles. Population (1901), about 335,651. Kumasi, the chief town, had 5940 inhabitants in 1905. The products are similar to those of the larger colony, and the imports and exports are included in those of the latter. Gold mining yielded in 1907 a value of £329,892. The Governor of the Gold Coast is also Governor of Ashanti, but the laws and ordinances are distinct from those of the latter.

ASPHALTUM. See MINERAL PRODUCTION.

ASQUITH, HERBERT HENRY. An English statesman, who succeeded Sir Henry Campbell-Bannerman as Prime Minister and First Lord of the Treasury, on April 8, 1908. He was born at Morley, Yorkshire, on September 12, 1852, was educated at Oxford, was called to the bar in 1876, and in 1886 was elected a Liberal member of Parliament for East Fife, which constituency he has ever since represented. His amendment to the Queen's speech in 1892 caused a dissolution of the Salisbury government, and resulted in his appointment as Home Secretary in the Gladstone-Rosebery Cabinet. He arbitrated the London cabmen's strike in 1894 and in that year drew up the Church of Wales disestablishment bill. He was an able and aggressive advocate of free trade as opposed to Mr. Chamberlain's preferential tariff programme in 1903, and in December, 1905, upon the dissolution of the Balfour ministry became Chancellor of the Exchequer in the Campbell-Bannerman Cabinet. During his premiership he advocated old age pensions (proposed by him in May, 1907), the "licensing" and "education" bills, and other important measures and policies. See GREAT BRITAIN, paragraphs on *History*.

ASSEMBLY, GENERAL. See PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA; and PRESBYTERIAN CHURCH IN THE UNITED STATES.

ASSOCIATED PRESS. An organization whose purpose is the collection and distribution of news. It was first incorporated in Michigan, later in Illinois and in 1900 in New York. The Associated Press has its own leased wires, which form a network covering the continent. The officers in 1908 were: President, Frank B. Noyes; First Vice-President, Charles Hopkins Clark, *Hartford Courant*; Second Vice-President, Rufus N. Rhodes, Birmingham, Ala.; Secretary, Melville E. Stone; Assistant Secretary, Charles S. Diehl; Treasurer, Herman Ridder.

ASSOCIATE REFORMED SYNOD OF THE SOUTH. A religious denomination, organized in 1803. It was connected until 1822 with the General Synod. The denomination in 1908 included about 12,600 communicants, 120 churches and 115 ministers. The denomination has churches in every Southern State and carries on mission work in Mexico. Its educational institutions are Erskine College, Erskine Theological Seminary and Due West Female College, all at Due West, South Carolina.

ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, BRITISH. A learned society, founded at York, England in 1831 for the purpose of stimulating scientific inquiry and for promoting the intercourse of scientific men. The Association meets annually for one week in some large provincial town, but never in London. The meeting for 1908 was held for the fourth time in Dublin, with an attendance of 2270. The presidential address, delivered by Dr. Francis Darwin, considered the movements of planets. The Association includes eleven sections as follows: Mathematical and Physical; Chemical; Geological; Zoölogical; Geographical; Economic Science and Statistics; Engineering; Anthropology; Physiology; Botany; and Education. Among the notable addresses delivered at the meeting were those of W. N. Shaw in the Mathematical and Physical section, discussing the functions of the State Meteorological Department; Professor F. S. Kipping in the Chemical section, dealing with the question as to whether any steps can be taken to place the chemical industries of Great Britain and Ireland in a more prominent position than that which they now occupy in the world of commerce; Professor John Joly of the Geological section, discussing uranium and geology; Mr. W. M. Acworth, in the Economic Science and Statistics section on the Relation of Railroads to the State; Professor C. L. Miall in the Educational section, discussing useful knowledge, and Professor B. Moore, in the same section, on the Correlation of Primary, Secondary, and University Education in Ireland. The Association will hold its next meeting at Winnipeg, Canada, on Aug. 15, 1909, under the presidency of Professor Sir J. J. Thompson. The officers in 1908 were, President, Dr. Francis Darwin, F. R. S.; General Secretaries, Major P. A. Macmahon, F. R. S., and Professor W. A. Herdman, F. R. S.; Assistant Secretary, A. Silva White.

ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS. See AGRICULTURAL EXPERIMENT STATIONS.

ASSOCIATION OF AMERICAN UNIVERSITIES. An organization founded in 1900 for the purpose of considering matters of common interest relating to graduate study in American institutions. Its membership in 1908

consisted of the following eighteen universities: University of California; Catholic University of America; University of Chicago; Clark University; Columbia University; Cornell University; Harvard University; Johns Hopkins University; University of Illinois; Leland Stanford Jr. University; University of Michigan; University of Minnesota; University of Missouri; University of Pennsylvania; Princeton University; University of Virginia; University of Wisconsin, and Yale University. The Ninth Annual Conference of the Association was held on Jan. 9th and 10th with the University of Michigan. The Association adopted as a condition for membership the presence in the institution in question of a strong graduate school, and in those institutions which have professional schools in addition to the Graduate Department, the requirement in at least one such school of one or more years of college work as a prerequisite for admission to professional courses, the combination to be so arranged that no professional degree shall be given until the satisfactory completion of at least five years of study. This action was important, since it for the first time defines what an American university is from the standpoint of fifteen of the most important of them, and it places all professional study in America in such institutions ultimately upon a graduate basis in that it is proposed in due time to require that all professional work shall be preceded by college work in the manner indicated. At this meeting, three institutions, the State Universities of Illinois, Minnesota, and Missouri, were admitted to membership in the Association. The officers of the Association for the year are: President, University of Michigan; Vice-President, Leland Stanford Jr. University; Secretary, Harvard University; additional members of the executive committee, Cornell University and Columbia University. The next annual meeting of the Association will be held at Cornell University on January 7th and 8th, 1909.

ASSUR, EXCAVATIONS IN. See ARCHÆOLOGY.

ASTEROIDS. See ASTRONOMY.

ASTOR LIBRARY. See NEW YORK PUBLIC LIBRARY.

ASTRONOMY. The year 1908 was chiefly noticeable for the discovery of a new satellite of Jupiter and the announcement of the probable existence of another large planet lying beyond the orbit of Neptune. Comets and minor planets, variable and double stars, received their usual share of attention. Mars, Jupiter and Saturn again were under observation, and our knowledge of the sun has received notable additions through the researches of Professor Hale and others. The Carnegie Institution at Washington established a new observatory in the southern hemisphere, located at San Luis, about 500 miles west of Buenos Ayres, for the purpose of making meridian observations of all the stars of the southern hemisphere brighter than the seventh magnitude, and any others which Lacaille included in the celestial survey which he made at the Cape of Good Hope in 1750.

THE SUN. The total eclipse of Jan. 3, 1908, was observed by American and English parties on Flint Island in the Southern Pacific. The American expedition was fitted out by the Lick Observatory; the English expedition was due to the initiative and munificence of Mr. Frank McClean. Although heavy rain fell until totality,

the sky cleared, and both parties were able to secure a fine series of photographs of the corona. In addition, the Lick observers obtained a number of photographs of the spectrum. The eclipse was noticeable for the large number of long narrow streamers in the corona, about thirty extending to a distance of more than one solar diameter, and about half of these to one and a half diameters. The photographs of the spectrum showed a shifting of the great intensity of the continuous spectrum towards the red, thus indicating the lower temperature of the corona as compared with that of the photosphere. Several new bright lines were detected. Search was also made for an intra-mercurial planet, but no results were obtained. Perrine, who carefully examined the plates, concluded that no such planet of sufficient magnitude exists as will account for the anomalies of the perturbations of Mercury. Successful bolometric measurements of the heat of the corona were also made.

Professor Hansky published a discussion of the results obtained from a study of the corona photographs taken at Alcocébre (Spain) by the Pulkowa expedition during the total solar eclipse of Aug. 30, 1905. The principal object of the photographs was to determine the velocity of the propagation of the coronal matter. The corona was of the "maximum" type, showing intense activity all round the disc. The streamers were arranged in eight groups. Professor Hansky finds that the centres of emission, though often near sun spots, do not coincide with them. The form and direction of a streamer is apparently to some extent dependent on the prominence above which it is found. The velocity of the coronal clouds above prominences was small, not exceeding 30 kilometers per second, while that of the matter at the prominences themselves often approached 300 kilometers per second.

During the year 1908, two estimates of the temperature of the sun were published, both considerably in excess of the value determined by Fery and Millochau and referred to in the *YEAR BOOK* for 1907. In *Annalen der Physik*, Goldhammer, from a discussion of Langley's observations arrives at the conclusion that the probable actual temperature of the sun is not less than 10,000° absolute. In the *Bulletin of the Philosophical Society of Washington*, Lummer considers that the temperature may, with reasonable assurance, be assumed to be about 7,000° absolute. He discusses the probable nature of the solar envelope, and finds that the broadening of the vortex. Such a field of force would affect lines in the prominences, and other spectral phenomena, can be explained by anomalous dispersion in the various layers of the sun's atmosphere. This was also the view held by Professor Julius of Utrecht, who devised laboratory experiments which supported his conclusions in a striking manner. According to Lummer and Julius, the chromosphere and prominences, faculae and flocculi, have no objective reality, the bright lines of their spectra being merely due to the light of the photosphere which is brought to us by anomalous dispersion through layers of non-homogeneous gases. Astronomers, however, hesitate to admit the validity of their arguments, and preparations were being made at Mt. Wilson Solar Observatory to put these theories to a thorough test.

It is well known that the meridian passage of large sun spots is often attended by sudden vari-

ations of the terrestrial magnetic elements, and to account for this phenomenon, it has been supposed that the spots were regions of magnetic force, but no strong evidence of this explanation has hitherto been forthcoming. Photographs of spots taken during June and July with the spectroheliograph of the Mount Wilson Solar Observatory, using the hydrogen line H α showed unmistakable evidence of strong cyclonic motion. Professor Hale, discussing these photographs in *Contributions from the Mount Wilson Solar Observatory*, suggested that a segregation of positively or negatively charged particles rotating in a solar vortex would give rise to magnetic lines of force at right angles to the plane of the vortex. Such a field of force would affect the light proceeding from the spot along the lines of force, and would produce the doubling of the spectrum lines, with components circularly polarised in opposite directions, which is known as the Zeeman effect. A later series of photographs, taken for the purpose of testing this supposition, confirmed it in every particular, the doubling of the lines being very marked. It was evident that the way was open for a systematic comparison of the solar and terrestrial magnetic fields, which should lead to definite advances in the field of terrestrial magnetism. See under *PHYSICS* paragraph on *Magnetic Field of Sun Spots*.

Professor Charles Lane Poor, of Columbia University, has published an account of his researches on the figure of the sun. He concludes that the commonly accepted belief that the sun is a sphere is not warranted, and finds indications of a fluctuation of the sun's shape corresponding with the 11-year sun spot and aurora periods, with possibly a minor fluctuation with a 28-day period.

SUN SPOTS. During most of the months of the year 1908, the solar surface was free from any marked disturbance, and it would seem as though the decline in solar activity which apparently began in 1906, only to be checked by a renewed outburst in 1907, had at last definitely set in. At no time during the year was there any large individual spots rivaling those of 1905 and 1907, but on several occasions large groups of spots appeared, some of them covering more than a billion square miles of the sun's surface. One of these made its appearance at the end of May, and lasted for more than a week. About the beginning of August, two enormous groups of spots were seen. The more southerly, starting as a few small spots, increased rapidly in size, and in a week had attained a length of more than 100,000 miles. Both groups reappeared at about the end of the month, the more northerly having increased enormously, until its area was more than two billions of square miles. This group again appeared about the end of September. It was then much smaller, but was still visible to the naked eye. Other large groups were noticeable in November.

SATURN. In January, 1908, as in October, 1907, the plane of Saturn's rings passed through the earth. On this occasion, the rings apparently were completely invisible, although the shadow on the planet's disc was quite noticeable. As an explanation of the bright knots observed by Professor Campbell in October, 1907, Lowell advanced the theory that the rings were not flat sheets, but were really flattened torus. The central portions of the rings would thus

be invisible, but, on both sides of the planet, where the depth of each ring in the line of sight is considerable, there would be presented the phenomena seen by Campbell.

Towards the close of the year, announcement was made from the Geneva Observatory of the discovery of a new dusky ring surrounding the bright rings, but confirmation was lacking.

JUPITER. On Feb. 28, Mr. Melotte, one of the assistants at the Greenwich Observatory, while engaged in measuring some photographs of the sixth and seventh satellites of Jupiter taken at Greenwich on Jan. 27, discovered near the planet a small object, which at first was supposed to be a new asteroid and received the temporary designation 1908 CJ. Subsequent examination by various observers soon made it clear that the body was another member of Jupiter's family of satellites. The new satellite was the faintest and most distant of Jupiter's satellites yet discovered. Its orbital motion was retrograde, and, according to its most recently published elements, its period of revolution was about two and a quarter years.

Professor Barnard, in a brief note in *Astronomische Nachrichten*, has published a discussion of the observations of the Great Red Spot which he had made during the previous thirty years. In 1879, he found that the spot exerted some peculiar repellent action on the matter of the South Equatorial Belt, forming what is known as the Red Spot Bay. In 1885 and 1886, the bay was very distinctly noticeable, the material of the equatorial belt north of, and following, the spot being repelled to form the large depression of the bay. In 1908, the spot had become greatly enfeebled and had almost lost all color, but the repellent action seemed to have lost none of its intensity. The material of the equatorial belt had flowed round the spot so that it completely surrounded it, but between the two the bay was still as noticeable as ever.

MARS. One of the strongest arguments against the possibility of Mars being habitable has been the failure to detect with certainty the presence of water vapor in the atmosphere of the planet. This was made the chief text of Dr. Alfred Russell Wallace's *Is Mars Habitable?* in which he subjected to critical examination the arguments presented by Professor Lowell in his recent work, *Mars and Its Canals*. Since the publication of these two works, Mr. Slipher, one of the assistants at the Lowell Observatory at Flagstaff, Arizona, has succeeded in photographing the lines due to water vapor in the atmosphere of Mars. He made use of plates sensitive to the extreme red rays, which with prolonged exposures were capable of photographing the spectrum in the neighborhood of the α band, the most intense of the absorption bands due to water vapor. Photographs of the spectrum of Mars showed this band clearly, while in the spectrum of the moon taken on the same plate it was absent, proving that the effect was not due to water vapor in the terrestrial atmosphere.

JOVIAN ASTEROIDS. In the YEAR BOOK for 1907, mention was made of the discovery of three minor planets, which have been named Achilles, Patroclus and Hector. These minor planets are interesting from the close association of their orbits with that of Jupiter. During the year 1908 another member, designated 1908 CS, was added to this group of Jovian asteroids.

Various suggestions were made as to the origin of the satellites of Jupiter, one being that the eighth satellite was the celebrated comet of Lexell, with a period of five and a half years, which was last seen in 1770. In 1779, this comet approached within a million miles of Jupiter, and may have been drawn into the Jovian system. A more plausible conjecture, however, was that of Professor Tarrida del Marmol, who is of opinion that the sixth, seventh and eighth satellites of Jupiter may have originally formed part of the Jovian group of asteroids and may have at some time been captured by the planet.

VARIABLE STARS. It had been recognized for some years that there was an intimate connection between the colors and periods of variable stars. Herr Beljowsky, of the Göttingen Observatory, contributed to the *Astronomische Nachrichten* an interesting study of this question. Making use of Pickering's second Catalogue of Variable Stars, in which the color data of about 300 stars were given, he found that in general the average color ranged from white, through yellow and orange, to red with an increase of period. The only break in the continuity of the sequence was in the case of stars whose period was 200-250 days, which was more yellow, than those whose period was 100-200 days. The relation between color and period was more strikingly shown when all stars brighter than magnitude 5 and fainter than magnitude 9.5 were excluded from consideration. When the stars are grouped according to declination, it is found that the average color and period of stars in different zones remain practically constant, while, grouped according to magnitude, the brightest stars are found to be the reddest.

STELLAR SPECTRA. In a short note in *Astronomische Nachrichten*, Professor W. H. Pickering suggests the establishment of a new type of stellar spectra in addition to the five types already recognized. Under this sixth type, he would classify a number hitherto placed under the fourth type, but containing rays of much shorter wave length than the ordinary members of this group, peculiar spectra and spectra containing dark bands. A list of 51 stars which conform to the type and almost all of which were determined from the Harvard photographs is given.

COMETS. The periodic comets due to return in 1908 were Giacobini's (1900, III), Denning's (1881, IV), Encke's (first observed in 1786) and Tempel-Swift's (1869 III). The year passed without the detection of the first two, the periods of which are 7 and 8.8 years respectively. Denning's comet was also missed in 1890 and 1908-9, its position at those returns being unfavorable for observation. Encke's comet has been observed at every reappearance since 1819, when its periodic character was first recognized. This year proved to be no exception; it was first noticed by Woodgate at the Cape Observatory on May 27. Comet Tempel-Swift, first observed by Tempel at the end of 1869, and recognized as periodic by Swift in 1880, has a period of about 5.5 years. It was well observed in 1891, but was not detected at either of its last two reappearances, in 1897 and 1903. This year, it was discovered by Javelle at Nice on Sept. 29. Comets Encke and Tempel-Swift are designated 1908b and 1908d respectively.

Two other comets were also discovered. These were: 1908a, a comet discovered by Wolf at Heidelberg on Jan. 2, and on account of its position, at first identified as Encke's. It had previously been photographed on Dec. 25, 1907, but had been overlooked at the time. It soon became evident from the differences between the observed positions and those of the published ephemeris that it was not Encke's comet. Dr. Backlund, director of the Pulkowa Observatory, suggested that possibly Encke's comet had divided itself into two parts, and that this part had been deflected, by the process of dislocation, from its original orbit. Some weight is lent to this explanation, as the true Encke, when discovered, was at some distance from the predicted position, though its motion in right ascension agreed with that given in the ephemeris.

1908c. A new comet discovered photographically by Morehouse at the Yerkes Observatory on Sept. 1. When first observed it possessed a long, continuous tail. Visually, it consisted of a diffuse nebulous mass with a not very distinct tail. It rapidly grew brighter, and, towards the end of September, became just visible to the naked eye. The tail at this time was double and about 40 minutes in length. On Oct. 1 the tail had disappeared, although it was detected again on Oct. 3 when it was shorter than before. During October, the tail underwent a series of startling changes, apparently due to the fact that the comet, in its journey through space, had encountered a number of meteor streams of different densities. At one time the tail had a large bright condensation at some distance from the head. This condensation, which, on Oct. 15, was 360,000 miles from the head, was travelling with accelerated motion at the rate of about 9 miles per second, and, on Oct. 16, was nearly a million miles from the head. A narrow stream of luminous matter connected it with the head, while from it proceeded numerous streamers forming a fan-shaped tail. Other condensations appeared, which gave the comet the appearance of having sloughed its tails.

MINOR PLANETS. Again, the number of minor planets announced as new during the year 1908 exceeds the century, and, as usual, the credit for their discovery rests chiefly with Prof. Max Wolf, of the Heidelberg Observatory, and his assistants, and Rev. Joel Metcalf of Taunton, Mass. The number announced was 120, exceeding by fifteen the total for 1907, and falling short of the total for 1906 by eight only. Of these 103 were discovered during the year. They have been provisionally designated by letters ranging time BM to FK, with the additional letters CE^a, CL^a, DO^a, and DT^a. Sixty-seven of these were first announced from Heidelberg by Wolf (10), and his assistants, Kopff (52), Lorenz (4), and Scheifele (1). One of those announced by Wolf (EA, discovered on Sept. 21) had, however, been found on the previous day by Metcalf, and another (FH, discovered on Dec. 31) was said to be doubtful. Of the remaining 36 discovered during 1908, 30 were due to Metcalf (Taunton, Mass.), 2 to Melotte (Greenwich), 2 to Palisa (Vienna), 1 to Davidson (Greenwich), and 1 to Hirayama (Tokyo). Several were identified previously discovered asteroids and it was thought that more would prove to be the same as known bodies when their orbits had been determined with suf-

ficient accuracy. CJ, discovered by Melotte on Jan. 27, proved to be an eighth satellite of Jupiter, as already mentioned.

Besides the minor planets enumerated above, there were seventeen others, discovered in previous years, but only recently identified. One of these OV^a was found by Barnard as long ago as 1904, but was thought at the time to be Phœbe, the then recently discovered ninth satellite of Saturn. The remaining sixteen, designated by letters ZW^a to ZW^d, AF^a=AN^a, to AN^k, BJ^a were discovered by Metcalf in 1907, but their identification was overlooked at the time on account of their discoverer's illness.

During the year 1908, the following minor planets received permanent numbers, ranging from 636 to 659:

1907 XP (=636); YE (=637); ZQ (=638), ZT, ZW, ZX, ZY, ZZ; AA (=644), AB, AC, AD, AE, AF, AM, AN, AU; BK (=653).
1908 BM (=654), BS, BU, BV, BW; CS (=659).

AU (=652) and BM (=654) are the only two planets which have received names during the year. They have been named *Jubilatrix* and *Belinda* respectively.

BM, the first discovery of the year 1908, was the brightest minor planet which had been discovered for some years. Its brightness was estimated at about 9.5. CS belongs to the Achilles group of asteroids which travel in orbits near that of Jupiter. See subheading *Jovian Asteroids*.

EXTRA-NEPTUNIAN PLANET. During December, Professor W. H. Pickering of the Harvard Observatory announced that, as the result of an investigation, a preliminary notice of which was communicated to the American Academy of Arts and Sciences in November, he had obtained evidence of the existence of a planet lying beyond Neptune. Its position was indicated for 1909 as in right ascension 7 hr. 47 min. and declination 21° North.

SYSTEMATIC MOTIONS OF THE STARS. In 1905, Professor Kapteyn pointed out that the stars surrounding us form a dual system. From a consideration of the motions of the stars of Bradley's catalogue, numbering about 2600, he was able to demonstrate the existence of two great streams of stars of nearly equal importance, in motion relative to each other and to the sun. There are, therefore, two regions of the sky where the stellar density tends to increase, and not one, as had formerly been the generally accepted opinion. Two years later, Eddington extended Kapteyn's researches to include the motions of the stars given in the catalogues of Groombridge and Carrington. These stars are confined to a region within 52° of the north pole. Their number is considerably larger than that considered by Kapteyn, being over 5000. They also include a much larger proportion of faint stars. Each of the zones embraced in these two catalogues was divided into more restricted regions, and for each region was constructed a curve in which the radius vector in a given direction is proportional to the number of stars whose motion is in that direction. If there existed only one stream of stars, each curve ought to possess a single maximum radius vector. Almost all of the curves, however, had two pronounced maxima, and could be decomposed into two simple curves, thus confirming Kapteyn's views. When the pairs of maximum radii were exam-

ined it was found that they could be separated into two groups, the members of each of which converged almost exactly to the same point of the sky. The two streams appear to be almost equivalent in point of numbers, distribution, distance, brilliancy and the character of their spectra. One of the streams, however, has much more pronounced maxima than the other, indicating that its velocity is between three and four times as great as that of the other streams.

During the year 1908, these researches still further were extended by Professor Dyson, the Astronomer Royal of Scotland, in the *Proceedings of the Royal Society of Edinburgh*. He chose only stars of large proper motion—about from 20 to 80 minutes per century—well distributed over the heavens. Of the 1100 stars considered, about 160 were situated within 52° of the north pole, about the same number were within 50° of the south pole, while the remainder were distributed over a belt 30° N. and S. of the equator. The effect of the exclusion of the stars of small proper motion is to bring out more strongly the character of the two streams, at the same time eliminating to a large extent the effects of errors of observation. This is noticeably the case with the stars of Stream II.

The positions of the apices of the two streams, as determined in the three discussions, are shown below:

	Stream I.		Stream II.	
	R. A.	Decl.	R. A.	Decl.
Kapetyn	85°	11° S	260°	48° S
Eddington	90°	19° S	292°	58° S
Dyson	94°	7° S	240°	74° S

HALLEY'S COMET. This famous comet, the return of which is expected in 1910, has been the subject of an extended research by Messrs. Cowell and Crommelin of the Greenwich Observatory. The object of the research was twofold, first, to determine with the necessary accuracy the date of the comet's perihelion passage in 1910, and second, to trace backwards the course of the comet and to identify its several returns. In his calculations of the date of return, Pontécoulant failed to take into account the perturbations due to Jupiter and Saturn. These combine to advance the date of perihelion passage, and the date now set is April 8, 1910. On May 12, the comet will be nearest the Earth. Hind traced back the returns of the comet to B. C. 12, identifying it at each appearance with some notable comet recorded in Chinese or European annals. Of these, perhaps the two most famous appearances were those of 1066 and 1456. In the former year it caused universal consternation throughout Europe, and was looked upon as a presage of the success of the Norman invasion of England. One celebrated record of its appearance at that time is to be seen in the Bayeux Tapestry, which is supposed to have been worked by Matilda, the Queen of William the Conqueror, and her ladies. Three years before the second of these appearances, Constantinople had fallen into the hands of the Turks, whose conquest of Europe seemed then to be assured, and the comet was held to be the forerunner of greater woes. The tail

of the comet at this time was nearly 70 degrees in length, making it a magnificent spectacle. Cowell and Crommelin find that Hind's identifications are in the main correct, the only errors being in the case of the apparitions of 608, 837, 912, and 1223. In the last case, their calculations give 1222 as the date of return. This was the date of a comet recorded by the Chinese, and also mentioned in European records. The records, however, are conflicting, but it is found that a satisfactory identification is obtained by accepting the Chinese records as they stand, and by making a change in the interpretation of the European records. The calculations have been carried back beyond the earliest date of Hind's identifications, and the return of B. C. 87 has been identified with fair certainty, that of B. C. 240 with some probability, while a comet which appeared in B. C. 467 is pointed out as being possibly identical with Halley's. At this point the enquiry into the past history of the comet is brought to a complete standstill through lack of earlier observational material.

MOUNT WILSON SOLAR OBSERVATORY. The tower telescope of the Mt. Wilson Solar Observatory has been completed. It consists of a tower 65 feet in height on the summit of which is mounted a cælostæt and a second mirror, which receive the rays of the Sun and reflect them vertically downward through a horizontal objective 12 inches in diameter placed just below the mirror. The focal length of the objective is 60 feet, and an image of the Sun six and a half inches in diameter is formed near the level of the ground, where it enters the slit of a Littrow grating spectrograph of 30 feet focal length. This stands in a deep well with concrete walls, constructed in the ground immediately below the tower. The telescope is to be used in investigating the peculiarities of the solar disturbances such as the sun spots and the coronal streamers. Among the novel features introduced in this instrument may be mentioned the extremely thick mirrors for the purpose of reducing the distortion due to the sun's rays, and the subterranean spectroscope chamber which is practically constant in temperature. Preliminary tests show that the telescope gives superior definition to the Snow telescope.

BOOKS. Among the more important works published during 1908 may be mentioned the following: Hale, *Study of Stellar Evolution*; Poor, *The Solar System*; Dolmage, *Astronomy of To-day*; Arrhenius, *Worlds in the Making*; Wallace, *Is Mars Habitable?* Hagen, *Atlas Stellarum Variabilium*, 6th Series.

ATHENS, EXCAVATIONS IN. See **ARCHÆOLOGY.**

ATHLETICS, TRACK AND FIELD. The thirty-third annual track and field contests of the Intercollegiate Amateur Athletic Association of America were held in Philadelphia on May 29 and 30, 1908. The contestants were greatly handicapped by rain and mud, and the only new records established were in the 120-yard hurdles and in the pole vault. A. B. Shaw, of Dartmouth, in the preliminary trial, ran the 120-yard hurdles in 15 1/5 seconds, equalling the world's record, made by A. C. Kraenzlein in 1898, and breaking the intercollegiate record of 15 2/5 seconds, held by the same athlete since 1889. In the pole vault, Dray, Nelson and Gilbert, of Yale, and Cook, of Cornell, tied

at 12 feet, excelling the previous intercollegiate mark of 11 feet $11\frac{3}{4}$ inches, made by Dray in 1907. Cornell won the meet with a total of 34 points. The number of points scored by other colleges was: Pennsylvania, $29\frac{1}{2}$; Yale, 22; Harvard, $17\frac{1}{2}$; Dartmouth, 17; Michigan and Swarthmore, 6 each; Princeton, 4; Syracuse, 3; Columbia, 2. The fourteenth annual athletic carnival of the University of Pennsylvania was held on April 25. The only record broken was in the pole vault, which was won by Dray, of Yale, with a vault of 12 feet $6\frac{1}{2}$ inches. The two-mile relay was won by Michigan and the one-mile relay by Pennsylvania.

The University of Chicago won the Western intercollegiate meet, held at Chicago on June 6, scoring 24 points. The standing of the remaining colleges was: Leland Stanford and Wisconsin, 20 points each; Illinois, 18 points; Grinnell, 8 points. In the dual meet between Yale and Harvard, held at Cambridge on May 16, several new collegiate records were made. Roberts, of Yale, ran the 120-yard hurdles in 15 1-5 seconds; Gilbert, of Yale, vaulted 12 feet $3\frac{3}{4}$ inches; Stephenson, of Harvard, put the 16 lb. shot 43 feet $\frac{1}{2}$ inch; and Witcher, of Harvard, ran the half-mile in 1 minute 58 $\frac{3}{5}$ seconds. The final score was Yale, 60 $\frac{1}{5}$; Harvard, 43 $\frac{4}{5}$. The results of other dual meets, held during the year, were: Yale, 73; Princeton, 31; Harvard, 68; Dartmouth, 49; Cornell, 80; Princeton, 37.

The championship games of the Amateur Athletic Union took place at Travers Island, N. Y., on September 18 and 19. No new records were made in the junior events, which were won by the Irish-American A. C., with a total of 35 points. Other scores were: N. Y. A. C., 31; Brookline M. G. T. T., 11; Montreal A. A. A., 9; Swedish-American A. C., 8; Pastime A. C., 7; Mercury A. C., 5; Chicago A. A., and Acorn A. A., 4 each. In the senior contests the Irish-American A. C. won 6 events; N. Y. A. C., 5; Chicago A. A., 2; and the Olympic A. C., and the Montreal A. C., 1 each. The national all-round championship of the American Athletic Union, held at Long Island City on September 7, was won by John Bredemus, of Princeton University, who scored a total of 5809 points in ten events. J. Mahoney, of the N. Y. A. C., was second with 5321 points. The record is 7130 $\frac{1}{2}$ points, made by Martin Sheridan in 1907. J. J. Eller, of the Irish-American A. C., ran the 220-yard hurdles in 24 $\frac{4}{5}$ seconds, establishing a new record. See OLYMPIC GAMES.

ATOM. See PHYSICS.

ATOMIC WEIGHTS. See CHEMISTRY.

AUSTRALIA, COMMONWEALTH OF. The area and population, exclusive of aborigines, of the Commonwealth of Australia are shown in the following table, by States:

	Area sq. miles	Population 1901	Pop. Dec. 31, 1907
New South Wales ..	310,872	1,359,341	1,571,267
Victoria	87,884	1,201,133	1,258,140
Queensland	670,500	503,266	546,467
South Australia....	903,690	362,604	396,028
Western Australia .	975,920	184,124	263,846
Tasmania	26,215	172,475	181,624
Commonwealth	2,974,581	3,782,943	4,217,372

In 1907, the population consisted of 2,232,997 males and 1,984,375 females.

The marriages, births, and deaths in 1907, and their rates per 1,000 mean population, are shown in the following table:

	Marriages		Births		Deaths	
	No.	Rate	No.	Rate	No.	Rate
N. S. Wales.....	12,189	7.84	42,195	27.14	16,410	10.56
Victoria	9,575	7.68	31,369	26.16	14,542	11.66
Queensland	4,105	7.58	14,542	26.87	5,599	10.35
S. Australia	3,079	7.94	9,236	23.82	3,828	9.87
W. Australia	2,114	8.02	7,711	29.24	2,924	11.09
Tasmania	1,411	7.91	5,291	29.68	2,001	11.22
Commonwealth ..	32,473	7.78	110,344	26.45	45,304	10.86

The number of arrivals and departures by land and sea in 1907 is shown in the following table, the excess of arrivals over departures giving approximately the number of immigrants:

	Arrivals	Departures
New South Wales	225,742	204,306
Victoria	99,416	96,153
Queensland	61,927	57,504
South Australia	76,766	69,181
Western Australia	22,012	23,523
Tasmania	34,803	32,557
Commonwealth	520,666	483,223

The population of the capital cities, as estimated at the end of 1907 is as follows: Sydney, N. S. W., 550,600; Melbourne, V., 538,000; Brisbane, Q., 135,655; Adelaide, S. A., 178,300; Perth, W. A., 50,380; Hobart, T., 35,685. In 1908, the seat of the Commonwealth Government was at Melbourne. The choice of a district for the federal capital was made towards the end of the year 1908, and the Yass-Canberra district, in New South Wales, 193 miles southwest of Sydney and 395 miles from Melbourne, was selected by the Federal Parliament.

IMMIGRATION. In 1908, arrangements were made with the Italian government for the introduction of Italian agriculturists into Western Australia. Land is to be assigned to them contiguous to the railways, and settlement is to be made on one side of the line only, it being intended to have British settlers on the other side to prevent exclusiveness. Arrangements are to be made with an agricultural bank for advancing money to the settlers, and schools for teaching English, as well as religious and medical needs, are to be provided by the State government until such time as the settlers will be able to undertake such responsibilities on their own account. The immigrants will pay a small rent for 18 years, at the end of which period they will become freehold owners. An experiment was first to be made with 100 families.

EDUCATION. Education is entirely under the control of the separate States. In New South Wales instruction is compulsory between the ages of 6 and 14. School fees were abolished in Oct., 1906, and education is now free. In 1907, the State primary schools had 5,745 teachers and 276,037 pupils, with an average

attendance of 152,607. Other State schools, including evening schools, high schools, etc., and private schools, had 3,625 teachers and 65,326 pupils. Of the private schools, the Roman Catholic schools had 1,871 teachers and 42,106 pupils in 1906. The University of Sydney, with about 1,050 students, receives an annual subsidy from the State. The Technical College, with numerous branch schools, had 15,594 students in 1906.

In Victoria, primary secular education is free and compulsory between the ages of 6 and 14. In 1907, the State primary schools had 4,721 teachers and 231,759 pupils, with an average attendance of 147,270. The State offers no secondary education, but there may be awarded annually 80 scholarships, each tenable for three years. Private schools had in 1907, 2,313 teachers and 147,270 pupils, about half the pupils being in Roman Catholic schools. There were under the Education Department three working men's colleges, five schools of arts, nine schools of mines, two agricultural and one horticultural colleges. The University of Melbourne, with about 900 students, receives aid from the State. Affiliated with it are an Anglican, a Presbyterian, and a Wesleyan college, and the School of Mines at Ballarat.

In Queensland, primary secular education is free and legally compulsory. In 1907, the State primary schools had 2,394 teachers and 105,382 pupils, with an average attendance of 66,849.

The State also maintains a number of secondary schools and grants annually a considerable number of scholarships, tenable for three years. There are a number of institutions giving technical instruction outside working hours, with about 4,300 students. Private schools had in 1907, 753 teachers and 15,385 pupils. In South Australia, secular education is free and compulsory. In 1906, the State primary schools had 1,429 teachers and 62,822 pupils, with an average attendance of 40,308; private schools had 722 teachers and 10,570 pupils. The State grants a number of scholarships, tenable through college and university. There are several denominational secondary schools, a training college for teachers, etc. The University of Adelaide, endowed by the State with considerable tracts of land, has about 700 students. In Western Australia, primary education is compulsory. In 1906 the State primary schools had 973 teachers and 28,927 pupils, with an average attendance of 24,973; private schools had 263 teachers and 7,515 pupils. In Tasmania, primary education is compulsory. In 1906, the State primary schools had 546 teachers and 24,221 pupils; private schools had 8,833 pupils. There are two technical schools, two schools of mines, and an examining and degree-conferring university. The State grants several scholarships.

MINERALS. The value of the mineral production in 1907 is shown in the accompanying table.

MINERAL PRODUCTION, 1907.

	Gold	Silver	Copper	Tin	Coal	Others	Total
N. S. Wales....	£1,060,730	£257,314	£727,774	£293,305	£2,922,419	£5,043,748	£10,295,290
Victoria	2,954,617	4,355	2,356	10,561	79,731	95,469	3,147,069
Queensland	1,978,938	112,540	1,028,179	496,766	222,135	293,606	4,132,163
South Australia..	36,602	Not Given	714,525	44,176		118,560	913,863
West'n Australia	7,210,749	25,382	180,387	158,648	55,158	3,742	7,634,066
Tasmania	277,607	Not Given	869,666	501,681	50,067	578,148	2,277,159
Commonwealth .	13,509,243	Not Given	3,522,887	1,506,107	3,329,500	6,133,272	28,399,600

The total mineral production of Australia down to the end of 1907 amounted to £692,321,274, of which gold represented £488,422,978; silver, over £4,363,773; copper, £49,295,016; tin, £26,011,526; coal, £59,717,864; all other, £64,510,117. For the year ending Dec. 31, 1908, the Australian output of gold was estimated at \$3,085,610 in value, as compared with \$3,182,381 in 1907. The production in every State shows a decline, except South Australia, where it increased in value by \$14,500.

In the following statement some additional information is given concerning the mineral production of the separate States.

In New South Wales the value of silver-lead in 1907 was £3,659,632; coal production, 8,657,924 tons; lead, 19,768 tons, valued at £374,182; zinc, 237,219 tons, valued at £536,620; coke, 254,609 tons, £159,316; cement, £144,548. In Queensland, the production of coal in 1907 was 683,272 tons; lead, 5,157 tons, £75,330; wolfram, 615 tons, £89,767; gems, £40,500. The pearl fisheries of Thursday Island yield the finest pearls in the world, one of which, valued at \$15,000, was in 1908 forwarded to London. The export of pearl shell from Thursday Island in 1906 amounted to 994,448 lbs., valued at

£47,423; bêche-de-mer, 293,888 lbs., valued at £13,938; tortoise shell, 3,659 lbs., valued at £2,007. In West Australia, the production of coal in 1907 was 142,373 tons.

AGRICULTURE. The following table shows, by States, the total area (acres) under cultivation, the area under crops, and that under artificially sown pasture, in 1907:

	Under Cultivation	Under Crops	Under Artificial Pasture
New S. Wales	3,916,956	2,572,873	736,080
Victoria	4,126,823	3,232,523	1,095,471
Queensland	642,979	532,624	76,943
S. Australia	3,246,824	2,150,291*	23,679*
W. Australia	579,425	460,825	6,787
Tasmania	290,576	257,028	465,673
Commonwealth ...	12,772,971	9,206,164	2,404,633

* 1906.

The areas under principal crops in 1907-8 are shown in the following, in acres:

	Wheat	Barley	Maize	Potatoes	Hay
N. S. Wales	1,390,171	11,890	160,980	31,917	541,761
Victoria	1,847,121	63,074	10,844	54,149	682,194
Queensland	82,461	6,943	127,119	7,889	54,087
S. Australia	1,753,755	28,122*	—	9,894*	271,067
W. Australia	280,549	6,007	87	1,836	130,508
Tasmania	30,794	5,852	—	38,640	73,859
Commonwealth	5,384,851	121,888	299,030	144,325	1,753,428

* 1906-7.

The yield of the principal crops in 1907-8 was as follows:

	Wheat	Barley	Maize	Potatoes	Hay
	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>tons</i>	<i>tons</i>
N. S. Wales	9,155,884	75,268	4,528,540	55,882	367,800
Victoria	12,100,780	1,058,295	508,761	135,110	682,370
Queensland	693,527	64,881	3,083,789	13,177	77,601*
S. Australia	19,135,567	491,246*	—	22,777*	315,857
W. Australia	2,933,350	75,965	1,090	5,659	136,625
Tasmania	644,285	149,186	—	146,483	98,406
Commonwealth	44,663,333	1,915,841	8,132,170	377,583	1,678,659

* 1906-7.

The area under sugar-cane in New South Wales was 17,953 acres; that crushed, 9,916 acres; yield of cane, 277,300 tons. The acreage under sugar in New South Wales has been decreasing, due to the superior attractiveness of dairy farming. The output of sugar in New South Wales in 1907-8 was 29,000 tons; in 1908-9, 27,000.

The cultivation of cotton in Queensland, abandoned in 1899-1900, was resumed in 1902, when 8 acres were planted. In 1907, there were 300 acres under cotton, yielding 109,294 lbs. of unginned cotton. Over one-half the area—152 acres—was cultivated at Cairns. The area under sugar-cane in 1907 was 126,810 acres; that crushed, 94,384 acres; yield of cane, 1,665,028 tons. The acreage under cane declined 6,474, and that crushed, 3,810, as compared with 1906, while the tonnage of cane was 63,752 tons less. Nevertheless, the output of sugar was 188,307 tons—an increase of 3,930 tons over 1906. For 1908-9 the sugar output was estimated at 160,000 tons. The area planted in tobacco in 1907 was 459 acres, against 666 acres in 1906, and the crop was 2,442 cwts., against 6,454 cwts. in 1906. The production of tobacco is practically confined to the Southern Downs, in the districts of Inglewood and Texas. The coffee production in 1907 was 112,453 lbs.—an average of 433 lbs. per acre.

In South Australia wine culture is becoming one of the most important industries. In 1898 there were 18,761 acres under vines, with 8,021,070 vines bearing and 1,803,367 non-bearing. In 1907 the area increased to 22,586 acres, with 10,599,712 vines bearing, and 1,523,999 non-bearing. The wine production in 1907 was 2,495,434 gallons, and the wine in stock was 5,392,245 gallons. About one-fourth of the annual production is exported. The manufacture of spirits in 1906 was 335,412 gallons. The export of apples in 1908 was the highest on record—147,251 cases, of which 110,294 went to Great Britain, and 19,058 to the European continent. A fibrous growth known as *Posidonia Australis*, covers an area many miles in extent in Spencer Gulf, South Australia, and often reaches within three or four feet of the surface of the water. Large samples have been

raised and cleaned, and it is believed that the discovery will be of great commercial value. The fibre is similar to jute tow, is strong, not inflammable, and absorbs dye very freely. A British-American company has secured an area of 5 square miles, and an Adelaide company has obtained the rights to 16 square miles. In the latter part of 1908 there was formed in Melbourne a syndicate, which has secured 15 square miles, situated about 25 miles from Port Pirie. The concession contains 12 feet of fibre under 4 feet of water. The syndicate proposed to obtain a special dredge, on which there will be complete accommodation for washing, drying, and packing. The estimated area under wheat in 1908-9 was 1,727,692 acres, and the estimated yield, 19,979,746 bushels. The estimated area under hay in 1908-9 was 334,408 acres, and the estimated yield, 504,311 tons.

The number of live stock in 1907 is shown in the following table:

	Horses	Cattle	Sheep	Pigs
N. S. Wales.....	578,326	2,746,393	44,531,839	216,145
Victoria	424,648	1,842,807	14,146,734	211,002
Queensland	488,486	3,892,232	16,738,047	133,246
S. Australia ...	224,447*	680,095*	6,916,000	112,277*
W. Australia ..	113,117	759,046	3,694,852	53,115
Tasmania	40,392	215,046	1,744,800	46,704
Commonwealth	1,869,416	10,136,096	87,772,632	772,489

* 1906.

The Australian wool year ends in June. The wool production of 1906-7 was 561,927,000 lbs.; of 1907-8, 539,762,000 lbs. The sales of wool in 1907-8 amounted to 1,218,772 bales (of about 334 lbs. each), or about 74.9 of the total production. Owing to the fall in prices in October, 1907, sales were restricted, and in the middle of 1908 it was reported that about 36,000 bales were being carried over. The progress of closer settlement and diversified farming, i. e., agricultural and pastoral combined, is illustrated in the following table, published by the New South Wales government statistician, concerning the classification of sheep flocks in that State at the close of 1897 and 1907. The in-

crease of small flocks and the decrease of large flocks are striking.

Size of flocks	1897		1907	
	Flocks	Sheep	Flocks	Sheep
500 and under	6,926	1,249,492	12,321	2,018,284
501 to 1,000	2,450	1,920,485	3,602	2,694,450
1,001 to 2,000	1,767	2,710,546	8,148	4,587,219
2,001 to 5,000	1,383	4,511,676	2,354	7,245,911
5,001 to 10,000	651	4,625,398	835	5,837,076
10,001 to 20,000 . . .	436	6,230,663	520	7,388,940
20,001 to 50,000 . . .	406	12,468,278	320	9,392,069
50,001 to 100,000 . .	104	6,972,298	66	4,359,321
100,001 and over . . .	21	3,264,061	7	938,569
Total	14,144	43,952,897	23,173	44,461,839

The following table shows the sheep flocks in New South Wales classified according to the number contained therein and the area of holdings on which they are pastured:

Area of holdings (acres)	Flocks	Sheep
1 and under 51	1,268	32,529
51 and under 101	811	45,001
101 and under 501	5,611	1,059,165
501 and under 1,001	4,399	2,023,708
1,001 and under 5,001	7,739	10,515,524
5,001 and under 10,001	1,391	5,037,113
10,001 and under 20,001	762	5,318,247
20,001 and under 50,001	579	7,336,742
50,001 and under 100,001	227	4,751,639
100,001 and upward	249	8,205,802
Ill-defined areas	139	136,369
Total	23,173	44,461,839

The Commonwealth Bounties Act of 1907 provided for the appropriation of £339,000 for the payment of bounties during a period of 15

years, commencing on July 1, 1907, on certain goods produced in Australia, including ginned cotton, flax, hemp, jute, sisal hemp, cottonseed and linseed supplied to oil factories for the manufacture of oil, uncleaned rice, rubber, coffee, high grade cigar leaf tobacco, dried dates, dried or candied fruit for export, combed wool for export, and preserved fish. The bounty on coffee is 1d. per lb., and the industry is further encouraged by an import duty of 3d. per lb. The bounty on cigar leaf is 2d. per lb.

MANUFACTURES. The manufactures are mainly confined to the treatment of perishable materials, such as meat preserving, butter and cheese making, wool cleaning, sugar manufacturing, wine making, distilleries and breweries, flour milling, the making of biscuits, jams, pickles, condiments, etc. Other industries are: Clothing, boots and shoes, bricks, pottery, etc. Industries of a more complex character are represented by the iron works at Lithgow, N. S. W., machine shops and metal works. In 1908, the Commonwealth government secured a site at Lithgow for the erection of the first Australian small arms factory. At first only rifles were to be manufactured, but later the manufacture of shells was to be undertaken. It was the object of the government to be in a position to manufacture the bulk of the war materials required for Australian defense. The following table presents some details regarding these Australian industries in 1906 and 1907, by States:

	No. of Factories	Workers	Value of Plant and Machinery	Value of Land and Premises	Value of Output
N. S. Wales	4,387	67,194	—	—	—
Victoria	4,530	90,903	£6,771,458	£8,376,642	£30,399,945
Queensland	1,725	28,856	4,036,379	2,371,423	11,106,979
S. Australia *	1,018	20,806	—	—	—
W. Australia *	802	13,739	1,913,436	1,893,019	—
Tasmania *	373	8,441	841,883	980,837	—

* 1906.

FOREIGN COMMERCE. In 1907, the total imports amounted to £51,809,033, and the total exports to £72,824,247, against £44,729,506 and £69,737,763 respectively in 1906. The 1907 imports included £1,834,200 specie and bullion, consisting mainly of gold imported from New Zealand for coining and trans-shipment. The amount of specie and bullion included in the 1907 exports was £72,824,247. The principal articles of import were: Apparel and textiles, £12,582,557; iron and steel plate, bars, etc., £2,443,563; metal manufactures, £3,929,828; agricultural implements, £409,502; other machinery, £2,754,596; jute goods, £1,373,667; timber, £1,606,290; tea, £1,153,322. The principal exports of merchandise were: Butter, £2,890,531; wheat, £4,802,723; flour, £1,296,348; wool, £28,891,830; copper, £3,457,226; frozen

mutton and lamb, £1,377,502; hides and skins, £2,823,376; tallow, £1,017,198; tin, £1,122,474. The distribution of imports according to countries of origin was as follows: Great Britain, £26,446,728; British possessions, £5,076,081; foreign countries, £18,974,833, of which £1,742,623 came from France, £4,623,136 from Germany, £6,765,182 from the United States, £632,486 from Belgium, £681,905 from Switzerland, and £575,045 from Japan. Provisional United States returns for 1908 give American imports from Australia at \$11,502,739, and American exports to Australia, \$26,471,918.

COMMUNICATIONS. The total railway mileage on June 30, 1907, was 15,250 miles. The details respecting the operation of State railways in 1907 are shown in the following table:

	Miles Open	Receipts	Expenditure	Net Earnings	Interest on Loans	Surplus or Deficiency—
N. S. Wales	3,473	£4,944,134	£2,714,839	£2,229,295	£1,605,377	£623,918
Victoria	3,400	4,022,231	2,370,695	1,651,536	1,487,984	163,552
Queensland	3,197	1,949,240	956,129	993,111	917,063	76,048
S. Australia*	1,977	1,569,386	881,285	708,101	555,871	152,230
W. Australia	1,764	1,537,333	1,135,907	401,426	358,734	42,692
Tasmania *	462	258,223	185,500	72,723	144,839	—72,116
Commonwealth	14,273	14,300,547	8,244,355	6,056,192	5,069,868	986,324

*1906

In 1908 the Federal Parliament voted £20,000 towards a survey of the proposed railway from

Kalgoorlie, W. A., to Port Augusta, S. A., and survey parties were despatched from South and

Western Australia. The survey is expected to occupy one year. This is the first step towards linking Western Australia with the railway systems of the eastern States. The total length of telegraph lines in 1906 was 47,525 miles. The shipping entered and cleared in 1907 was 8,822,866 tons. The merchant marine at the end of 1906 consisted of 1,082 steamers, of 238,742 tons, and 1,644 sailing vessels, of 128,288 tons.

FINANCE. In the fiscal year 1907-8 the total Commonwealth revenue and expenditure balanced at £15,018,489. The revenue from customs and excise was £11,645,409; from post office, telegraph and telephone, £3,297,100; miscellaneous, £73,289; balance from previous year, £2,691. The expenditure was distributed as follows: Trade and customs, £277,027; posts and telegraphs, £2,885,540; defence, £865,433; public works, £876,366; miscellaneous, £15,689; "new" expenditure, £1,238,838; surplus distributed among the States, £8,859,596. For 1908-9 the revenue was estimated at £14,577,000; expenditure, £6,513,000; and surplus to be returned to the States, £8,064,000. The revenue (including amounts returned to the various States for the terms and dates indicated were as follows:

	Revenue	Expenditure	Debt, June 30
N. S. Wales, 1907-8....	£13,960,763	£12,158,456	£87,635,826
Victoria, 1906-7	8,345,534	7,679,143	53,104,989
Queensland, 1906-7	4,307,912	3,911,797	41,764,467
S. Australia, 1906-7	3,252,705	3,396,499	30,526,718
W. Australia, 1907-8 ..	3,376,640	3,379,005	20,493,618
Tasmania, 1907-8	1,004,309	928,972	10,056,122

ARMY AND NAVY. The military forces of the Commonwealth, administered by the States, consisted on June 30, 1908, of 1,379 permanent troops, 16,154 militia, 5,098 volunteers, 889 reserves, 50,375 members of rifle clubs, and 29,191 cadets, giving a total of 103,086 officers and men. In 1908, the Commonwealth Government was contemplating a comprehensive scheme of military organization, the leading features of which were as follows: Every boy from 12 to 18 years of age must serve in a cadet corps; from 18 to 21 he must be a member of the National Guard and undergo three annual trainings, aggregating 48 days; and between 21 and 26 he will be incorporated in the first line of the active army. The whole organization is to be on a democratic basis, promotion being from the ranks. It has been computed that under this system 27,000 youths will enter the ranks every year; 83,000 will be undergoing military training in each year; and in eight years there will be 214,000 trained men. (See below.) The naval force of the States on June 30, 1908, contained 1,796 men. The British fleet stationed in Australasian waters, of which Sydney is the headquarters and to the maintenance of which Australia contributes £200,000 annually, consisted in 1908 of 20 cruisers and minor vessels, aggregating 47,000 tons. For the proposed small arms factory at Lithgow, see above under *Manufactures*.

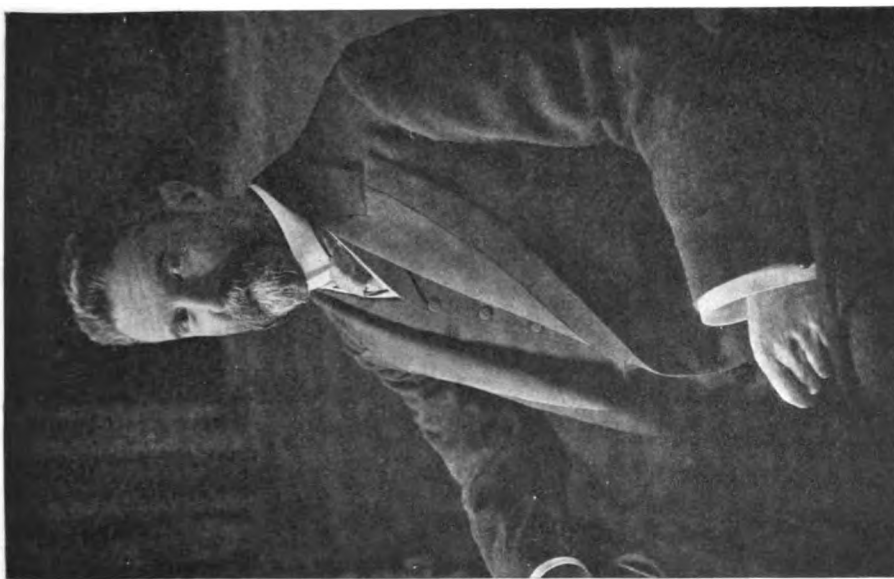
GOVERNMENT. The Governor-General in 1908 was the Earl of Dudley. The Cabinet of Nov. 12, 1908, was as follows: Prime Minister and Treasurer, Andrew Fisher; Trade and Cus-

toms, Frank Gwynne Tudor; Attorney-General, Wm. Morris Hughes; External Affairs, Egerton Lee Batchelor; Defense, George Foster Pearce; Home Affairs, Hugh Mahon; Postmaster-General, Josiah Thomas; without portfolio, J. Hutchinson. For the colonial possession of Australia see PAPUA.

HISTORY.

POLITICAL ISSUES. The Deakin Cabinet continued in office during the greater part of 1908. As in the preceding Parliaments, the Labor party held the balance of power. The Federal elections of 1906 had left the "triangular anarchy," as some critics called the three-party system, substantially unchanged. The programme of the Labor party as put forth in 1905 embodied the principles of a "White Australia," Federal unity, collective ownership of monopolies, and the extension of State and municipal functions in economic and industrial affairs. The leading issue in the campaign of 1906, supported alike by the followers of Mr. Deakin and by the Labor party, was the principle of the "new protection," that is, the imposition of protective duties only for the benefit of such industries as conformed to certain requirements in the matter of wages and manufacturing processes. If the domestic producer did not conform to these requirements, a countervailing excise duty was to be levied on the protected article. The elections of 1906 were regarded as an endorsement of this principle; and in October, 1907, legislative proposals embodying it were outlined by Sir William Lyne. These were contained in the Federal Excise Tariff Act, subsequently passed, whose provisions are described below. The constitutionality of this measure was a leading topic of discussion during 1908. Other important issues before the country were the policy of military and naval defense; the question of Federal assumption of State debts; the question of State and Federal coöperation in the immigration policy, and the old age pension scheme.

FEDERAL AND STATE GOVERNMENTS. There was a conference of State Premiers in May to discuss the assumption of State debts. The proposal of the Commonwealth was unanimously rejected, unless it observed the following conditions: (1) Payment to each State of a fixed annual sum in addition to its share of any increase in revenue from customs and excise; (2) The States to be the sole judges in raising loans without any interference by the Council of Finance; (3) In the event of assumption, the total indebtedness of each State to be reduced by the value of the properties transferred from the States to the Commonwealth. The arguments which Mr. Deakin had urged on behalf of Federal assumption were, that in the end it would reduce the cost to the States, since even the wealthiest of them could not expect to place a loan on as good terms as the six States combined. Moreover, the rate would be fixed and uniform, a single Australian stock taking the place of the separate State stocks and resting on the credit of the entire Commonwealth. This stock would not vary in price in the world's markets to the extent to which the separate stocks would vary. The appeal of the central government to the States to co-operate with it in a strong immigration policy met with little better success. Early in the year Mr. Deakin had written to the State governments, asking them what inducements they



Courtesy of the "Review of Reviews"

ALFRED DEAKIN

**Prime Minister of Australia, Leader of the Ministry defeated on
Nov. 10th by the Labor Party**



Courtesy of the "Review of Reviews"

THE EARL OF DUDLEY

Governor-General of Australia

intended to offer to encourage the immigration of people of their common race. Apparently the States preferred to follow their separate courses. To Mr. Deakin's questions as to the number of immigrants each State would take and as to the means that the Federal government should adopt in order to procure them, the only answer was, that the requirements of the States differed and that each State could deal with the matter separately to better advantage. Later, however, Victoria adopted a different attitude from the other States and decided to give the government the desired information.

THE DEFENSE SCHEME. The subject of Australian defense, which was much discussed during the year 1907, continued to be a topic of importance in 1908. On December 13, 1907, the Premier had given an outline of the government's defense policy. He proposed that the officers and men for a small Commonwealth flotilla should be engaged in Australia under Royal Navy conditions or obtained from the Royal Navy, preference being given to Australians; and that the vessels should be paid for and controlled by Australia. In case of war it was to be expected that the fleet would be placed under the command of the Admiral of the station. The government planned to buy three steamers and two coastal torpedo boat destroyers of the latest type each year for three years. To the home government it was proposed that one-half of Australia's annual contribution of £200,000 to the Imperial Navy be spent on providing for 1000 native seamen and the remaining half on the building of the flotilla. As to military defense, the plan provided for compulsory military training of young men of 18 years of age and over to the extent of 16 days' camp training each year for three years. It looked to the establishment, within a period of eight years, of a national corps of over 200,000 men. Early in 1908 the plan of the government was more definitely formulated and modified in details. The Premier announced in March that the government was prepared to spend £430,000 a year on harbor and coast defense, and \$230,000 upon the construction of a local flotilla. He estimated the total military and naval expenditures for three years at £1,800,000 annually, and he declared that within eight years there would be an army of 200,000 and a flotilla of 15 harbor and coast defense vessels. The new defense bill was introduced in the Federal House of Commons on Sept. 29. It established a national corps of compulsorily trained men and provided for the retaining of so much of the existing militia as the Ministry desired. The principle on which it was based was that of universal military service. All able-bodied males between the ages of 12 and 18 were to receive a cadet training, and from 18 to 21 were to serve in the National Guard. The training proposed for recruits between the ages of 18 and 21 was to last for 18 days during the first and second years, and 12 days during the third year. The new measure took the form of amendments to the Defense Acts of 1903-4, and the portions of these acts which were not amended remained in force, including liability to serve between the ages of 18 and 60 years in time of war. It was denounced by its enemies as a conscription bill. To this it was answered that while conscription took a

man from his home for years, this merely gave him a few weeks' healthful work and training in the open air. It was further declared that the voluntary system was generally acknowledged by the military officers to have been a failure; that while there were 800,000 adults in Australia within the fighting ages, less than 20,000 had enrolled in the defense force. The government estimated that by this measure 82,000 men could be had for only £100,000 more than they were now paying. Meanwhile Parliament had already passed, before its adjournment on June 4, a harbor and coast defense bill. In reply to the questions raised in connection with the proposed flotilla, the British Admiralty said on August 20, that while they believed defense against oversea attack could best be made by distributing the Imperial naval forces, they recognized the importance of the local flotilla and would coöperate in its formation. A *Blue Book of the British Government* containing the correspondence on the subject was published on Oct. 15, 1908.

OLD AGE PENSIONS. The Old Age Pension Law, passed on June 4, by the Commonwealth government just before its summer adjournment, provided for pensions of \$2.50 a week to all indigent persons 65 years of age or more, who had resided in the Commonwealth for not less than 20 years; also for persons over 16 years of age, permanently disabled. It was estimated that the cost of the measure would be \$9,000,000 annually. (See OLD AGE PENSIONS.)

THE "NEW PROTECTION." The Federal Excise Tariff Act, above mentioned, laid an excise duty at the rate of half the import duty on all goods of the same class as those protected, but exempted such goods as were manufactured under certain prescribed conditions, especially as to the remuneration of labor. It was required that the remuneration of labor should be "fair and reasonable." To determine what was a "fair and reasonable" rate, a special Board of Excise was to be established to inquire into the conditions of the manufacture and decide whether the remuneration of labor was up to the required standard. If it attained that standard, the Board would then apply to the goods the Commonwealth trade-mark. Wide powers were given to the Board for the inspection of factories, examination of books, etc. If the Board found unduly high prices or combinations to raise prices in industries protected by the tariff, it could recommend to Parliament the abolition, or lowering, of the duty. The constitutionality of this measure was much discussed during the year, and test cases were brought before the Federal High Court, which decided in June that an attempt to regulate wages by excise duties was *ultra vires*. Thereupon the Premier declared that the government must adopt some means of overcoming this obstacle. On the opening of the Federal Parliament on Sept. 16, the new Governor-General, the Earl of Dudley, also emphasized this necessity, declaring that the constitution should be amended so as to provide for the "new protection." In October, a measure was laid on the table, for the amendment of the constitution for this purpose. It empowered Parliament to legislate concerning the employment and remuneration of labor in any protected industry, and bestowed on the Inter-State Commission power to determine

which industries should be protected and to administer the law.

CHANGES IN THE GOVERNMENT. In March, 1908, the Earl of Dudley was appointed Governor-General to succeed Lord Northcote. On Sept. 9, the new Governor-General landed and took his oath of office at Sydney, and on Sept. 16, opened the Commonwealth Parliament. The Ministry experienced difficulties with the Labor party during the year. In April, owing to the disaffection of several members, who acted with the Opposition, the Premier threatened to resign, but upon the assurance that better discipline would be maintained, decided to remain at the head of the Government. The Labor party, however, was dissatisfied with the measures of the government in regard to the "new protection," ostensibly on the ground that they did not go far enough. After Mr. Deakin offered the amendment to the constitution above mentioned, Mr. Fisher, the leader of the Labor party, announced that they would withdraw their support. On Nov. 10 the government was defeated on division by 49 against 13, and on the following day Mr. Fisher was sent for by the Governor-General to form a new Ministry. In the new Cabinet, Mr. Fisher became Prime Minister and Treasurer. The new Ministry was made up entirely of the Moderate element in the Labor party. On Nov. 21 Mr. Reid resigned as leader of the Opposition.

OTHER EVENTS OF THE YEAR. The people joined the government in giving a most cordial welcome to the United States fleet, which visited Sydney on Aug. 20, and afterwards visited Melbourne and Albany. (See UNITED STATES, paragraph Navy.) In the autumn session of Parliament the choice of the Yass-Canberra district as the site of the new capital of the Commonwealth was approved by both Houses. Lord Rosebery's committee having proposed in the course of its report on the reform of the House of Lords (early in December), that nominees of the self-governing colonies of the Empire should be present at the deliberations of the Lords, Mr. Fisher declared himself in favor of the plan, provided their decisions were not binding. On Aug. 4 an important judicial decision was rendered, pronouncing it unconstitutional to register a union label as a trade-mark.

AUSTRIA-HUNGARY. The Austro-Hungarian Monarchy consists of the Austrian Empire and the Hungarian Kingdom, besides the Territories of Bosnia and Herzegovina. An account of the annexation of these territories as integral parts of the dual monarchy will be found under the section *History*, in the article BALKAN QUESTION, and BOSNIA, and HERZEGOVINA. The area and population (1900) of the constituent parts of the monarchy are as follows: Austria, 115,905 square miles and 26,150,708 inhabitants; Hungary, 125,608 square miles and 19,254,559 inhabitants; total, 241,513 square miles and 45,405,267 inhabitants. Included in the figures for Hungary is the province of Croatia and Slavonia, 16,410 square miles and 2,416,304 inhabitants. According to language the population was divided in 1900 as follows:

	Austria	Hungary	Monarchy
German	9,170,939	2,135,181	11,306,120
Hungarian	9,516	8,742,301	8,751,817
Bohemian, Moravian and Slovak	5,955,397	2,019,641	7,975,038
Polish	4,259,152		4,259,152
Ruthenian	3,375,576	429,447	3,805,023
Croatian and Servian	711,380	2,730,749	3,442,129
Slovenian	1,192,780	98,941	1,291,721
Rumanian	230,963	2,799,479	3,030,442
Italian and Ladin	727,102	27,482	754,584
Others and foreigners	517,903	271,338	789,241
Total	26,150,708	19,254,559	45,405,267

At the beginning of 1907 the population of Austria was estimated at 27,725,749. This is probably in excess of the actual population, as the increasing emigration, particularly from Galicia, Bukovina, Carniola, and Dalmatia, could not be taken into the calculation.

In 1906, the number of marriages in Austria was 215,956; births, 973,660; deaths, 633,140; and in Hungary, 170,826 marriages, 748,060 births, and 504,790 deaths. Insufficient data show the emigration of Austrians in 1906 to have been 136,354; of Hungarians, 178,170. The population of the principal cities of Austria in 1900 was as follows: Vienna, the capital, 1,711,556 (estimated Dec. 31, 1907: 1,999,912); Prague, 201,589 (June 10, 1907, including suburbs and garrison of 10,583: 470,906); Lemberg, 159,877; Gratz, 138,080; Trieste, 134,143; Brünn, 109,346; Cracow, 91,323; and of Hungary, estimated at the end of 1907: Budapest, the capital, 891,066; Szegedin, 114,423; Maria-Theresiople (Szabadka), 89,888; Debreczen, 86,674; Presburg (Pozsony), 73,896; Agram (Zagrab), 74,900; Fiume, 44,620.

EDUCATION. In Austria in 1905 there were 21,502 elementary schools, with 86,969 teachers and 4,001,645 pupils; in 1906, 233 gymnasias with 84,450 pupils, and 128 *realschulen* with 44,769 pupils. The eight universities had about 21,000 students in 1907. The eight technical universities had in 1908 nearly 10,500 students. In 1906 there were 190 agricultural and forestry schools with 8,000 pupils. The number of commercial schools in 1905 was 272, with 29,300 pupils; of trade schools, 1,274, with 127,400 pupils. In Hungary there were in 1906 19,064 primary schools, with 39,957 teachers and 2,717,975 pupils; 179 gymnasias with 3,530 teachers and 57,400 pupils; 41 *realschulen*, with 902 teachers and 12,173 pupils; and three universities, with 9,300 students. The technical university in Budapest had about 1,300 students. There are about 900 special agricultural, commercial, technical and industrial schools, with 150,000 pupils. On Dec. 31, 1906, there were published in Austria 3,825 newspapers and periodicals, of which 2,291 were in German, 109 in Italian, 840 in Czech, 297 in Polish, 48 in Ruthenian, 77 in Slovenian, 35 in Croatian, 8 in Rumanian, 57 in other languages, and 51 in several languages.

AGRICULTURE. The total cultivated land of Austria in 1907 covered 10,653,703 hectares (1 hectare = 2.47 acres). The area and production of the principal crops of Austria in 1907 are shown in the following table (1 quintal = 220½





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lbs., 1 hectolitre = 2.84 U. S. bushels, 1 liquid hectolitre = 26.42 U. S. gallons):

	Hec- tares	Production
Wheat.....	1,179,455	14,252,632 quintals
Rye.....	1,963,577	21,959,777 quintals
Barley.....	1,166,526	17,108,296 quintals
Oats.....	1,935,710	24,763,320 quintals
Maize.....	348,344	4,216,259 quintals
Buckwheat..	181,319	2,359,524 hectolitres
Pulse.....	212,969	4,183,180 hectolitres
Wine.....	237,807	4,250,342 hectolitres
Flax.....	62,681	{ 814,680 quintals of seed and 463,428 quintals of fibre
Hemp.....	29,377	{ 138,503 quintals of seed and 213,229 quintals of fibre
Tobacco ..	5,114	68,622 quintals
Hops.....	23,866	135,966 quintals
Potatoes...	1,258,545	146,634,423 quintals
Sugar beet	232,574	63,938,958 quintals
Meadows...	2,988,781	92,922,344 quintals of hay

The output of grapes was 41,753 quintals; figs, 74,410 quintals; chestnuts, 39,411 quintals; olive oil, 9,294 quintals. The production of silk cocoons in 1906 was 2,083,570 kilograms.

The acreage and production of cereal crops and potatoes in Hungary, exclusive of Croatia and Slavonia, in 1907, and the estimates for the same in 1908, were as follows:

	Acres, 1907	Bushels,* 1907	Acres, 1908	Bushels,* 1908
Wheat ...	8,069,300	120,506,000	8,547,000	146,498,000
Rye, incl.				
Maslin ..	2,632,500	42,097,000	2,743,000	48,871,000
Barley ...	2,725,200	53,078,000	2,700,000	56,564,000
Oats	2,653,100	79,484,000	2,649,000	72,291,000
Maize ...	6,081,500	156,616,000	5,936,000	152,159,000
Potatoes	1,407,600	178,156,000	1,442,000	134,940,000

* Wheat and potatoes, 60 lbs.; rye and maize, 56 lbs.; barley, 48 lbs.; oats, 32 lbs.

The production of wheat in Croatia and Slavonia in 1907 was 10,200,000 bushels; rye, 3,000,000; barley, 2,100,000; oats, 4,200,000; maize, 25,600,000. The production of silk cocoons in Hungary in 1907 amounted to 1,407,155 kilos, valued at 2,874,032 kronen (1 krone = 20.3 cents), against 1,776,682 kilos in 1906; an inspectorate of the silkworm industry was established, and some 85,000,000 mulberry saplings were distributed. The production of sugar beets in Austria-Hungary in 1907-8 was 8,603,500 tons, and was estimated at 7,913,300 tons for 1908-9.

MINING AND METALS. The leading mineral products of Austria in 1907 were valued as follows, in kronen (1 krone = 20.3 cents):

	Ores	Metals
Gold	615,926	455,522
Silver	2,798,149	4,131,009
Quicksilver	2,198,042	2,487,322
Copper	524,712	1,318,880
Iron	21,911,283	109,695,842
Lead	5,424,601	6,993,331
Zinc	2,735,109	6,178,142

The production of iron ores in 1907 was 2,540,118 metric tons; pig iron, 1,363,524 metric tons. The production of coal was 13,850,420 metric tons, valued at 125,529,105 kronen; brown coal, 26,262,110 tons, valued at 129,492,964 kronen; briquettes (coal and brown coal),

3,702,391 kronen; coke, 1,855,375 tons, valued at 35,064,635 kronen. The total value of the mining production in Austria in 1907 was 294,238,741 kronen, showing an increase of 33,864,646 kronen over 1906; of the furnace production, 132,807,655 kronen, an increase of 14,855,408; of salt works, 48,185,552 kronen, an increase of 235,551. The total net value (i. e., after deducting value of ores used in furnaces) of the mineral, furnace, and salt production in 1907 was 420,905,064 kronen, an increase of 40,344,067 kronen over 1906. Bohemia contributed in 1907 48 per cent. of the total value of the mining and furnace production, and Styria, 16.14 per cent. The total number of workers in the mining, metal and salt works in 1907 was 159,552, of whom 56,326 were employed in brown coal mines and 69,995 in coal mines.

The value of the principal mineral and metal products of Hungary in 1906 was as follows: Gold, 12,255,233 kronen; silver, 1,426,335; lead, 866,803; coal (1,026,056 metric tons), 10,796,536; brown coal (6,307,185 tons), 45,732,508; briquettes, 2,290,558; coke (79,923 tons), 2,126,297; pig iron (419,691 tons), 33,843,039; antimony, 1,922,454. The total value of the products of mines and furnaces in Hungary in 1906 was 118,411,187 kronen, against 106,732,027 in 1905. The number of employees in mines and furnaces in 1906 was 72,290 (including 1673 women and 4934 children), of whom 9473 were engaged in coal mining, 31,274 in brown coal mining, 10,300 in iron mining, 16,181 in mining for other minerals, 4376 in iron furnaces, and 1066 in other metal furnaces. The number of serious accidents was 457, of which 109 were fatal.

MANUFACTURES. In the year ending Aug. 31, 1908, there were in Austria 4,026,460 cotton spinning spindles. The mill consumption of cotton during the year was 739,941 bales (467,230 American, 237,702 East Indian, 27,922 Egyptian). The development of the cotton industry since 1900 has been remarkable. Whereas formerly Austria was not able to supply its own demand for cotton goods, its exports in 1907 amounted to \$20,689,000, besides supplying the needs of Hungary. About one-half the cotton goods exports goes to Turkey and the Balkan States. The tobacco industry is a government monopoly, the cultivation, manufacture, and sale of tobacco being controlled by government officials. There are two distinct offices for the management of the business, one for Austria and one for Hungary. The imports of leaf tobacco greatly exceed the exports, having been 26,372 and 7527 tons respectively in 1906, but the exports of the manufactures of tobacco exceed the imports of them. Thus the imports of cigars in 1906 amounted to 84,940 pounds, and the exports, 215,520; the imports of cigarettes, 155,000 pounds, and the exports, 551,760 pounds. The production of raw sugar in Austria-Hungary in 1907-8 was 1,393,900 tons; in 1908-9, 1,355,200 tons. Austria is by far the more industrial half of the dual monarchy, but beginning with 1881 there has been a series of laws adopted in Hungary for the encouragement of industry and granting subventions, loans, and other favors to new industries. The latest of these laws came into force in January, 1907, and the amount granted in the first nine months of 1907 for the development of home industries was 11,907,990 kronen, of which 9,921,869 was given

to manufacturers. At the beginning of 1907 there were in Hungary 630 factories employing 71,400 workers. The centre of the cotton industry is at Rozsahegy (Rosenberg), in the north of Hungary, containing about half the cotton spindles. In January, 1908, there were in Hungary 2 spinning mills, with 65,120 spindles; 3 spinning and weaving mills, with 85,040 spindles and 2126 looms; 14 weaving mills, with 2953 looms; 3 thread mills, with 20,000 spindles; and 1 waste spinning mill, with 1300 spindles; giving a total for the cotton industry of 23 mills, 171,460 spindles, and 5079 looms. The silk cocoons produced in Hungary are worked up into silk in the country itself; in 1907 the silk manufactured amounted to 125,000 kilos, valued at 6,800,000 kronen.

Towards the end of 1908 the Austrian Cotton Spinners' Association decided to reduce the yarn production by about 15,000,000 to 16,000,000 pounds during the first six months of 1909. This measure was due to the large stocks of yarn on hand, low prices, and unfavorable outlook. The loss of trade in Turkey was severely felt. This action of the spinners, it was expected, would be followed by a corresponding decision on the part of the weavers.

COMMERCE. The commercial union of the two States requires to be renewed every ten years. Begun under the present constitutional arrangement in 1867, it was renewed in 1878 and 1887, maintained on its former basis, notwithstanding disagreement in 1907, (see below, *Finance*), and renewed in 1907. Under this agreement Austria-Hungary forms one customs territory, with common coinage, weights, and measures, a joint bank of issue, common consular representation, and identical excise taxes. The imports for consumption and exports of domestic produce in 1907 amounted to 2,501,974,000 and 2,457,286,000 kronen respectively, against 2,341,205,000 and 2,380,087,000 respectively in 1906 (1 krone = 20.3 cents). The imports and exports of coin and bullion in 1907 amounted to 43,838,544 and 79,455,917 kronen respectively. The principal imports in 1907 were, in kronen: Colonial produce, 66,699,095; southern fruits, 40,125,778; tobacco, 44,100,902; cereals, flour, flour products, and pulse, 37,143,705; vegetables, fruits, and plants, 104,325,143; living animals, 31,775,383; animal products, 166,855,343; greases and oils, 55,303,283; wood, coal, and turf, 210,926,858; minerals, 48,160,085; cotton, yarn, and manufactures thereof, 375,995,381; other vegetable textile materials, yarns, and manufactures thereof, 84,249,428; wool, yarn, and manufactures thereof, 237,810,530; silk and silk goods, 112,907,830; paper and paper manufactures, 29,858,171; india rubber, gutta percha, and their manufactures, 34,649,655; leather and its manufactures, 61,130,475; iron, steel, and manufactures thereof, 49,245,702; other common metals and their manufactures, 129,015,831; machinery and electrical apparatus, 111,167,176; instruments, watches, and small ware, 45,065,123; chemical substances, drugs, and perfumery, 69,823,353; literary and artistic articles, 52,276,020. The principal exports in 1907 were, in kronen: Sugar, 198,669,989; cereals, flour, flour products, and pulse, 157,239,092; vegetables, fruits, and plants, 92,448,827; living animals, 105,419,633; animal products, 213,452,727; beverages, 39,180,432; wood, coal, and turf, 396,705,039; minerals, 48,087,665; cotton, yarn, and manufactures thereof, 90,748,247; other

vegetable textile materials, yarns, and manufactures thereof, 66,779,740; wool, yarn, and manufactures thereof, 113,260,980; silk and silk goods, 46,437,998; clothing, 93,975,686; paper and its manufactures, 68,760,627; leather and its manufactures, 64,482,470; wood and bone manufactures, 80,323,740; glass and glassware, 72,810,451; iron, steel, and their manufactures, 66,537,975; other common metals and manufactures thereof, 75,788,965; machinery and electrical apparatus, 33,919,217; chemicals, drugs, and perfumery, 43,036,534. The trade in 1907 with the principal countries of origin and destination was as follows, in kronen:

From and to	Imports	Exports
Great Britain	238,529,000	222,247,000
Germany	979,535,000	1,176,802,000
France	83,014,000	73,456,000
Italy	122,580,000	193,303,000
Russia	137,778,000	78,213,000
United States	238,877,000	68,204,000
British East Indies	185,426,000	50,823,000

In the first nine months of 1908 the imports amounted to 372,276,828 kronen, against 361,242,560 for the same period in 1907, and the exports to 346,237,612 kronen, against 350,511,000 for the same period in 1907. The decrease in exports in 1908 is undoubtedly to be ascribed to the Turkish boycott. See **BALKAN QUESTION.**

COMMUNICATIONS. The number of ships entering the ports of the monarchy in 1906 was 146,438, of 19,499,615 tons; of those clearing, 146,367, of 19,467,221 tons. The Austro-Hungarian flag was represented by 123,044 ships, of 16,225,769 tons, among those entering, and by 122,960 ships, of 16,197,078 tons, among those clearing. The merchant marine in 1907 consisted of 14,755 ships, of 455,534 tons, with crews aggregating 41,039; the number of steamers was 393, of 403,301 tons, and of sailing vessels, 14,362, of 52,233 tons. The length of railways in Austria at the beginning of 1908 was 13,860 miles (including 352 miles of minor railways); 9,533 miles were operated by the State, 4,266 miles by private companies, and 61 miles were foreign. In 1908 it was reported that the Austrian government obtained control of the lines of three companies, aggregating 1,826 miles. The operation of the Austrian State railways in 1906 resulted in a deficit of 83,000,000 kronen. The annual deficit is due partly to the taking over of railways worked at a loss, partly to the construction of lines for purely strategical reasons, and partly to the policy of granting in certain cases minimum rates below the actual cost of operation, with the object of fostering certain industries. Thus the Austrian beet sugar industry owes its importance mainly to the great export trade, which amounts to three-fourths of the entire output. This export is rendered possible by the low railway rates. The railways in Hungary had at the beginning of 1907 a length of 13,557 miles, of which about four-fifths are operated by the State. In 1907 the supply of railway rolling stock proved inadequate. The government therefore proposed to devote 90,000,000 kronen from the public works loan to enlarging stations, completing certain railway lines, building new lines, and purchasing new rolling stock. The execution of a plan involving a cost of about 100,000,000 kronen for the

regulation of rivers was also to be begun within a year. The length of telegraph lines in 1906 was 26,652 miles in Austria, and 15,109 miles in Hungary.

FINANCE. The cost of administering the common affairs of the monarchy is borne by the two States in the proportion agreed on by their Parliaments and sanctioned by the monarch. From 1897 to 1907 the two Parliaments came to no agreement and the monarch had annually decided that the proportion should be that hitherto prevailing, namely, 34.4 per cent. for Hungary and 65.6 for Austria. In 1907 the agreement was renewed for a period of ten years. According to this agreement the net proceeds of the common customs shall be applied to the common expenditure, and to the remainder Hungary shall contribute 36.4 per cent. and Austria 63.6 per cent. The budget estimates for the common affairs of the monarchy for 1908 balanced at 396,165,603 kronen. The revenue from customs and the contributions from the two halves of the monarchy were estimated at 386,923,102 kronen, the remainder being covered from receipts of the various ministries. The principal items of expenditure were estimated as follows: Army, 319,931,164 kronen; marine, 57,285,000; foreign affairs, 13,964,547. The common debt, dating from before 1867, stood on Jan. 1, 1908, at 5,258,934,395 kronen.

In the budget of Austria for 1908 the revenue was estimated at 2,149,022,233 kronen, and the expenditure at 2,148,913,254 kronen. The principal estimates of ordinary revenue were: Land, house, industrial, personal, and other "direct" taxes, 323,552,000 kronen; customs, 130,410,000; excise, 356,307,200; salt monopoly, 47,552,000; tobacco monopoly, 243,957,800; stamps, 55,765,000; court fees, 109,787,200; lottery, 30,540,150; posts and telegraphs, 160,400,000; railways, 504,804,480. The principal estimates of ordinary expenditure were: Contribution to the common expenditure, 279,765,654 kronen; national defense, 76,712,227; worship and public instruction, 86,265,565; public debt, 405,239,477; posts and telegraphs, 136,831,800; railways, 380,461,070; public works, 60,266,087; justice, 81,148,531; civil pensions, 85,028,018. The public debt of Austria stood on Jan. 1, 1908, at 4,584,865,298 kronen.

The budget of Hungary for 1909 estimated the revenue at 1,555,777,976 and the expenditure at 1,555,729,907 kronen. The principal estimates of ordinary revenue were: Land, house, industrial, and other "direct" taxes, 240,822,000 kronen; excise, 246,835,000; salt monopoly, 34,899,000; tobacco monopoly, 144,152,000; stamps, 45,175,000; court fees, 70,323,000; profits from State domains, forests, mines, mint, etc., 132,590,234; posts and telegraphs, 75,185,000; railways, 327,470,000. The principal estimates of expenditure were: Contribution to common expenditure, 86,760,838 kronen; contribution to common debt, 60,619,340; Hungarian debt, 189,832,887; national defense, 48,548,723; worship and public instruction, 72,663,209; justice, 48,395,962; ministry of commerce, 339,167,240; ministry of finance, 228,047,567; administration of Croatia-Slavonia, 23,000,000. The public debt of Hungary at the beginning of 1907 stood at 5,554,763,524 kronen.

ARMY. The army is formed on the German model with the necessary modifications required by the dual nature of the monarchy. The first line of the Austro-Hungarian army is the "Common Army." The remainder of the forces are separate, and guaranteed so by the constitution,—that is, the Austrian Landwehr and Landsturm are entirely separate from the corresponding forces in Hungary. Military service is compulsory and universal for all citizens between nineteen and forty-two years of age in both countries. Continuous service in the common army lasts for three years, then seven years in the reserve, two years in the Landwehr reserve, after which the soldier goes to the Landsturm until the end of his liability to service. The military budget for the year 1908-9 carried a total of 488,108,653 francs, an increase of 26,307,789 francs from the preceding year. The contingent for the year was 103,100 men. The effective strength of the army was also slightly increased, to the following figures: Common Army, 22,395 officers and 293,823 men; Austrian Landwehr, 3,487 officers and 34,918 men; Hungarian Landwehr (Honved) 2,860 officers and 25,880 men; total, 28,742 officers and 354,621 men; aggregate, 383,363 of all ranks. The last authentic estimate of the war strength of the empire was 2,234,000 men.

The principal military events of importance in 1908 were the adoption of the new sharp pointed bullet, consisting of a steel point in a lead case, and the consequent adoption of a new powder, and resighting of the rifle; the completion of the rearmament of the field artillery with the new rapid fire gun introduced in 1905, and the reorganization of this branch of the service; the creation of ten sections of balloon troops, and experiments looking to the development of a system of attacking hostile airships; the large increase in the use of machine guns of which there will be 160 detachments with 364 guns in the service when the programme adopted in 1907 is completed; the substitution of an automatic pistol for the revolver; and the organization of a volunteer corps of automobilists and cyclists for scout and messenger service.

NAVY. The effective navy consisted, at the beginning of 1908, of 3 first class battleships, aggregating 31,800 tons; 3 second class battleships, 25,020 tons; 3 third class battleships, 16,800 tons; 6 armored gunboats, 2,400 tons; 3 armored cruisers, 19,000 tons; 7 protected small cruisers, 19,850 tons; 11 destroyers, 5,280 tons; 36 torpedo boats, 4,200 tons; total, 72 ships of 113,450 tons; and 14,535 men. The increase in tonnage in 1907 was 800. In addition there were 3 first class battleships, aggregating 44,000 tons, under construction. It was decided that Austria would in future build battleships of from 18,000 to 19,000 tons; those under construction in 1908 displacing only 14,500 tons.

GOVERNMENT. The Emperor-King Franz Josef I., born Aug. 18, 1830, became Emperor of Austria on Dec. 2, 1848, and King of Hungary on June 8, 1867. The common ministers at the end of 1908 were: Foreign Affairs, Baron Alois von Aehrenthal; Finance, Baron Stephan Burian de Rajecz; War, Baron Franz von Schönaich; Navy (section of War Office), Count Montecuccoli. The Premier of Austria was Baron von Bienenrath; of Hungary, Dr. Alexander Wekerle.

HISTORY.

MINISTRIES. In the dual monarchy the Ministry for Common Affairs was constituted as follows: Minister for Foreign Affairs, Baron von Aehrenthal; Minister of Finance, Baron Stephan Burian von Rajecz, and Minister of War, General von Schönaich. *The Ministerial Council for Austria:* Prime Minister, Baron von Beck; Minister of the Interior, Baron von Bienenrath; Justice, Dr. Franz Klein; National Defense, General von Latscher; Public Worship and Instruction, Dr. Marchet; Commerce, Dr. Fiedler; Finance, Dr. von Korytowski; Agriculture, Dr. Ebenhoch; Railways, Dr. Derschatta Edler von Standhalt; Public Works, Dr. Gessman. The representatives without portfolio were: Dr. Graf Dzieduszycki for Galicia; Prasek, Czech representative, and Peschka, German representative. Toward the close of the year, however, a ministerial crisis occurred and Prime Minister von Beck was succeeded by Baron von Bienenrath. *Ministry for Hungary:* Prime Minister and Minister of Finance, Dr. Alexander Wekerle; Interior, Count Julius Andrássy; Justice, Dr. Günther; National Defense, Ludwig Jekelfalussy; Public Worship and Education, Count Albert Apponyi; Commerce, Franz Kossuth; Agriculture, Dr. Ignaz Daranyi; Croatia, Slavonia and Dalmatia, Geza von Josipovich.

The main interest of the year 1908 centered in foreign affairs and especially in the unexpected annexation of Bosnia and Herzegovina in October, which produced a crisis in the Balkans, and for the time being threatened a European war. This event in its general European relations is discussed in the article on the **BALKAN QUESTION** (q. v.). The present discussion is confined to a narrative of the incidents in the Austro-Hungarian foreign policy, and to the record of internal affairs.

PARLIAMENT. It will be remembered that 1907 was the first year of Austria's experiment in universal suffrage. By the Electoral Law of Jan. 26, 1907, the Lower House is elected on the basis of universal direct equal suffrage. The qualifications of electors are, the attainment of twenty-four years of age and residence for one year in the district; and for deputies thirty years of age and three years of Austrian citizenship. In the general elections of 1907, the Socialists showed the largest gains; the Social Democrats numbering 83 and the Christian Socialists 67. One effect of the new system was said to be a tendency on the part of national parties to divide along new lines and to fall into the two larger groups of Social Democrats on the one hand and Christian Socialists and Conservatives on the other. Whether or not this was permanent, it was evident that the rivalries between the different nations were less conspicuous under the new system. For the first time in six years it was possible as the result of an election by universal suffrage to secure the consideration and voting of the budget in an orderly manner. In the course of the year there were signs of a tendency on the part of the Christian Socialist, Conservative and Agrarian interests to draw together against the rising tide of socialism, and it was thought that a *bloc* might be formed by these opposing parties for that purpose. The Agrarians and Clericals were in control of the Reichsrath during the 1908 session, and there seemed to be danger that the Liberal

groups would be crushed between the two extremes of Clericalism and Socialism.

The Vienna Municipal Council with the recognized Christian Socialist leader Dr. Lueger at its head, virtually controlled Parliament and threatened alike the von Beck ministry and the Liberal groups. Its chief aim was control of the universities, and its efforts to that end provoked a new Kulturkampf. Some years before, the Austrian episcopate, at the instance of the Vatican, had planned a Catholic University. But the university when finally established lacked an adequate faculty, and did not satisfy the Catholic aspirations in the matter of higher education. Once in power, the Clericals aimed to bring the universities under their own administration, subjecting the liberty of teaching to Church control. This aim was implied in an address by Dr. Lueger at the Catholic Congress. Great alarm was expressed in university circles, and at Innsbrück where the theological faculty is directed by the Jesuits, Dr. Wahrmond spoke against the project at a public meeting. Thereupon the Papal Nuncio demanded of the Minister of Foreign Affairs the dismissal of Dr. Wahrmond for this breach of the ecclesiastical peace. Baron Von Aehrenthal replied that he could not grant this request or permit a foreign power to meddle in questions of internal order. The Vatican did not uphold the Nuncio, who indeed had exceeded his rights; but the ultramontane party now took as their watchword dismissal of Wahrmond and the interdiction of his university teaching. University professors protested against this violation of the constitutional guarantee of freedom of research. Large numbers of the students sided with Wahrmond, and there were conflicts between them and the Clerical students at the University of Vienna in May. At Gratz further disturbances occurred at about the same time, owing to the attempt of some Catholic peasants under the leadership of Christian Socialist deputies to force their way into the university on the occasion of the granting of a decree. Innsbrück was also a centre of disturbance. Finally on June 5th a strike of the students occurred, and the courses in all the Austrian universities were suspended. The strike was due largely to the ambiguous position taken by the government. The Minister of Public Instruction was alone in declaring that he would not permit the independence of universities and the freedom of research to be curtailed. The Minister of Justice undertook to proceed against the book which contained the offensive remarks of Dr. Wahrmond. Parliament, however, was at that time busy with the consideration of the budget and anxious to restore peace. The Liberal groups in Parliament strove to quiet the students. Finally the matter was settled by the transfer of Dr. Wahrmond to Prague.

Among the social and economic questions which were awaiting an answer from Parliament was that of insurance against old age and illness. Six years before, the government had made certain investigations and estimates as to provisions for pensions, by a thoroughly responsible organization, to workmen already insured in existing associations. Now, however, a measure of insurance was demanded, also, by unorganized working men engaged in agricultural occupations and in independent trades. For these a different system was required, and the government was committed to some measure that would meet their demands. Another problem was pre-

sented by the necessity of an increase of salaries throughout the entire administration, and an increase in the pay of officers and soldiers. Here the Treasury was embarrassed by the question of raising the necessary revenue. The cost of maintaining the ponderous and old fashioned administrative system was much larger than in more effectively administered countries, as for example Great Britain. The cost is increased in Austria by the necessity peculiar to her of doubling the number of civil officers in the provinces where two languages are spoken equally. Hence the number of administrative officers is disproportionately large. It has been estimated that they exceeded tenfold the number required to do the same work in Great Britain.

The government wished to decrease the direct and increase the indirect taxation, but feared the opposition that such a measure would be likely to arouse. Many devices for raising money were considered by the Minister of Finance, for example, the increase of the duty on alcohol by fifty crowns per hectolitre and the raising of the rates on the national railways. The Socialists demanded an increase of the income tax. The action of the government was hindered by the fear of rousing the national rivalries. Another measure desired by the government but opposed by Parliament was a strengthening of the army. The Minister of War proposed the addition to the Landwehr each year of 5,000 men to take the place of that increase in the effective force which the government had been unable to secure on account of the opposition of Hungary. In case of war, these Landwehr recruits were to act as regular troops. The war ministry also desired the substitution of a two-year service for a three-year service, but here again were deterred from pressing the measure by fear of parliamentary opposition on the score of increased cost and by the risk of a renewal of the Hungarian demand for a national and territorial army, which would break up the common Austro-Hungarian military organization.

ANNIVERSARY CELEBRATIONS. The Emperor's Jubilee was celebrated throughout the empire on June 12th, by fêtes, processions and other ceremonies, and by the founding of charities for children and the aged. They were marked by many proofs of devotion on the part of the people indicating the almost patriarchal relation between their old sovereign and themselves; and by tacit consent the attempt was made to avoid anything that could provoke a political crisis during the Jubilee. It seemed for a time as if a truce had been concluded between the warring nationalities. An impressive feature of the celebration was the passing in review before the Emperor of 12,000 of his subjects, dressed in their diverse national costumes. The ceremonies were renewed on Aug. 18th, the seventy-eighth birthday of the Emperor. On this occasion an amnesty was granted to all persons convicted of *lèse majesté*; all first offenders sentenced to two weeks' imprisonment or 150 crowns fine and to 752 persons specified by name. Further celebrations took place on Dec. 2, the sixtieth anniversary of the Emperor's accession. At the illuminations in Vienna on this occasion a panic took place, resulting in the death or injury of several persons.

HUNGARY. On Jan. 1, 1908, the new Customs and Commercial Treaty, which was signed on Oct. 8, 1907, came into effect. This recog-

nized a separate but identical tariff in each country, and complete equality and freedom of action on the part of each. A court of arbitration was to be established to settle differences between the two countries; and Hungary was to redeem her part of the old joint debt by capitalizing her interest at a specified rate within ten years. Hungary consented to an increase of her quota for the joint expenditure from 34.4 to 36.4. Early in the year the question of the Hungarian franchise was discussed, but nothing definite was accomplished. The franchise, according to Count Andrássy's plan, extended the suffrage to all males over twenty-four years of age who could read and write Hungarian. Single voting was the rule, but two votes were allowed to those who paid a certain amount of direct taxation, and three votes to those who had attained a certain standard of education. The scheme also proposed a redistribution which would increase the constituencies, especially in Magyar districts. A dispute occurred in May over the pay of army officers, which threatened to cause strife in the Delegations. In the latter part of the month, however, an agreement as to the amount of increased pay was reached in a joint council of the Austrian and Hungarian ministers. Bills making important changes in the educational system were proposed by the Hungarian government. These included full instruction in the national schools, state support of private and religious schools, and the establishment of agricultural secondary schools for children from thirteen to fifteen years of age.

RACIAL CONFLICTS. The attempt to compromise the disputes between the Slav population and Magyars in Croatia was unsuccessful. The Croats obstructed all Parliamentary action, and in January the Hungarian Chamber drew up rules for the purpose of crushing out the Croatian and non-Magyar opposition. The new Ban, Baron Rauch, who arrived at Agram on Jan. 15, was received with stones and jeers. The result of the February elections was the return of forty-four members hostile to the Kosuth government. The new Croatian Diet was disorderly, and was dissolved by the Ban after two days (March 12-14). On April 12th Count Potocki, the Governor of Galicia, was shot and killed at Lemberg by a Ruthenian student. The Ruthenians had recently tried to gain for themselves an equal footing at the Lemberg University with the Poles. The Governor's alleged oppression of the Ruthenians was said to be the motive of the crime. On Nov. 29 rioting occurred at Prague, where a mob attacked the German students and professors and tore down the Austrian flag. The riots were renewed on Dec. 1. Resistance was offered to the troops; several persons were injured, and a state of siege was proclaimed. The disorders were the outcome of the Czechish movement, the Czechs being strongly in sympathy with Serbia and hostile to the Austro-Hungarian foreign policy. These and similar outbreaks that occurred in various parts of the Empire during the year showed the difficulty of any reform that aimed at complete autonomy for the different races. The representation of the races in the Cabinet, though it tended to promote harmony, had in fact its disadvantages. It was difficult for the Premier to control such a cabinet, owing to the necessity of compromising conflicting racial interests. To this composition of the Cabinet was attributed in part its vacillations

during 1908, and its inactivity. Its attention was absorbed in placating the opposing groups in Parliament, where each group bargained with the government in its own interest. It was only the feeling that universal suffrage was under test that prevented the lapse of the Reichsrath into the parliamentary inaction of the past.

There was considerable discussion during the year in connection with a new movement which, under the name of Triolism, aims at the substitution for the present dual organization of the Hapsburg territories, of a triple partnership consisting of Austria and Hungary as now, with the addition of a Slav Kingdom in the south to be formed out of the scattered Slavonic population at present included in Croatia-Slavonia, Bosnia, Herzegovina, Dalmatia, Carinthia and other south Austrian States. The plan was said to have the support of the heir apparent, Francis Ferdinand, but involved certain very obvious difficulties. Hungary would be unwilling to surrender Croatia-Slavonia over which she holds direct rule, and Bohemia, which is ambitious of being placed on an equal footing with Austria and Hungary, would press its claims more than ever if recognition was extended to the southern Slavs.

FOREIGN POLICY. The aggressive policy of the Austro-Hungarian Prime Minister, Baron von Aehrenthal, appeared first in the proposal of the Novi-Bazar Railway. He announced on Jan. 27th, that his government had been authorized by the Porte to build a railway through the Sanjak of Novi-Bazar, from the Bosnian frontier to Mitrovitz in Macedonia, which would connect Salonica directly with Vienna, thus establishing complete communication between Austria and Macedonia, and giving access to the sea. This gave rise to much discussion, especially in Russia, where the press attacked the measure as a violation of the Austro-Russian agreement of 1897. Russia retorted with a demand for a Russian-built line uniting the Danube with the Adriatic and passing through Servia and Scutari. To this the Austro-Hungarian government declared that there would be no objection on its part. The important bearing of this affair was in its relation to the programme for Macedonian reform and to the arrangement between Austria and Russia in regard to that matter. For an account of this and for further details as to the railway project, see the article MACEDONIA.

The chief event of the year, however, was the announcement by proclamation on Oct. 7th of the annexation of Bosnia and Herzegovina, which came shortly after Bulgaria had declared its independence of Turkey. The proclamation began by referring to the advantages that the two provinces had enjoyed under Austro-Hungarian administration. It then declared that the government intended to grant to both provinces constitutional institutions: that the inhabitants of the provinces should henceforth have a voice in their own affairs, and should continue under a separate administration. "But the indispensable premise for the introduction of this provincial constitution," says the proclamation, "is the creation of a clear and unambiguous juridical position for the two lands. For this reason, and also remembering the ties that existed of yore between our glorious ancestors on the Hungarian throne and these lands, we extend the rights of our suzerainty to Bosnia and the Herzegovina, and it is our will that

the order of succession of our house be applied to these lands also." The proclamation concluded with a promise of equal rights and equal protection for all creeds, languages and racial differences. This was followed by the announcement of the evacuation of Novi-Bazar by Austria and its retrocession to Turkey. Turkey immediately protested to the Powers against this violation of the treaty of Berlin. For the effect of this event on the Balkan question and on general European politics, see the article BALKAN QUESTION. Soon after the proclamation appeared, a new Diet for Bosnia and Herzegovina was ordered. The rescript declared that the new legislature should have control over the provincial administration and judiciary, and that it ought to be as fully representative as possible of racial, religious and political conditions. To this end it was required that the principal dignitaries, the persons of education and fortune, the inhabitants of the towns and those of the rural communes shall be represented in separate *Curia*; the electors of each voting separately according to creed, in order to preserve religious concord and assure to each creed its due proportion of representatives. It was later announced that the new Diet would contain fifty-two elected and twenty-eight official members, divided as follows: Serbs, 27; Mohammedans, 34; Catholic Croats, 19.

One of the interesting results of Austria's aggressive policy in the Balkans was considered to be its possible effect on the maintenance of the Triple Alliance for the present was asserted, in support of Austrian policy but in Italy Baron von Aehrenthal's acts aroused intense displeasure. The Austrian advance southward was regarded as a menace to Italian aspirations regarding the Adriatic coastland of Turkey. This was plainly brought out in the course of an important debate in the Italian Chamber, in December, where speakers of all parties agreed that Italy must be prepared for hostilities on her northeastern frontier, that is with her present ally, Austria-Hungary. The need of maintaining the Triple Alliance for the present was asserted, but at the same time it was made evident that with France now as the good friend of Italy, the chief reason for the Alliance had disappeared and Austrian pretensions were consequently subjecting it to an increasingly dangerous strain.

AUTOMOBILES. During 1908 a careful examination of the leading types of automobiles and motor vehicles revealed no striking improvements or innovation of a radical character, and it was generally assumed that the limit of development of the automobile practically had been reached. Naturally there was more extended use and application of the motor vehicle, while the policy of standardization by associations of manufacturers was developed, and the constantly diminishing price made possible by interchangeability of parts was bringing the machine to a wider circle of users. Moderate priced cars of medium size of 24 to 30 horsepower, selling from two to three thousand dollars, had a well merited vogue, and the year's output in this field exhibited greater reliability and durability. Automobile manufacturers in the United States succeeded in improving the character of their output so that by 1908 the best American cars not only could stand comparison with those of European mak-

ers, but for rough service showed greater durability.

During the latter part of the year the manufacturers of automobiles had completed their models for the ensuing year and were prepared to exhibit them in the winter's shows. The chief exhibitions, which previously had been held in November and December, were postponed until early in the following year in order that the latest developments and models might be shown by all manufacturers. But the machines themselves were already available for inspection before December, and indicated clearly the progress of the year and salient features of the 1909 model. As in previous years the tendency towards standardization and interchangeability of parts, characteristic of the work of the best American machine shops, was distinctly noticeable, and this had its effect in the more reasonable prices demanded for good cars and in the excellent character of the material used in their construction. The cars designed during 1908 and put on the market for the following year were, for the most part, moderate priced, and it was noted that over one-half of the probable output would be cars listed at \$1,500, or less. Accordingly, it is possible to describe a general type of automobile to which most of the makers approximate very closely. This typical, moderate priced car had a four-cylinder engine of from 20 to 30 horse power, and weighed from 1,500 to 2,000 pounds. The engine had water-cooled cylinders, and forced feed lubrication, with magneto ignition and batteries in reserve. The driving gear had a direct shaft with three speeds ahead and one in reverse, with a sliding gear transmission, and a leather covered cone clutch of some form was employed. The frame was made of pressed steel, riveted. The car would seat comfortably four people and had a wheel base of from 100 to 115 inches. The tires were 3½ inches on the front, and 4 inches on the rear wheels, and 34 inches in diameter.

The chief change to be noted from the models shown at the end of 1907, was the use by many manufacturers of the drop frame in the chassis, which serves to bring both frame and gear nearer the ground, so that the angle in the driving shaft at the universal joint is reduced. Full elliptic springs or three-quarter elliptic springs were preferred to the semi-elliptic springs hitherto used, and by many it was believed that the full elliptic would soon become standard practice. The four-cylinder engine throughout the year and for the new construction, was the prevailing type, and its field was not seriously invaded by the six-cylinder engine with its many good qualities, including power for climbing hills, of which much was promised at the beginning of the year. Naturally the four-cylinder engine was more economical in weight, space, simplicity and cost than the six-cylinder type. Ball bearings, extensively used on wheels, were beginning to be replaced by roller bearings, especially for the front wheels, and the gear drive was being used for fans, instead of the belt drive. The stroke of the engines was being lengthened, which gave a reduced shock and allowed the reciprocating parts to be made lighter. This advantage lessened the wear on the engine, and not only reduced weight, but also the amount of shock and vibration. During the year it became clear

that the over-powered machine of great weight was passing away, and even in racing, the light weight cars of moderate power covered the long distance courses at a rate that was only a few miles below the average speed of the heaviest and most powerful racing machines. During the year the tire manufacturers were able to turn out tires where the life was greatly increased, but this in large part was due to the use of lighter weight cars. There were also in use a number of detachable rims which gave satisfaction. The brakes of the various cars were being lessened in number, but improved in their quality and action. The increased and more general use of automobiles had its effect in the appearance of car bodies which were showing greater simplicity and refinement characteristic of the taste of the owners using such vehicles for purposes of general utility rather than for mere pleasure.

During the year there were a large number of low-priced cars put out, that is, cars ranging from \$500 to \$1,000, and for the most part, supplied with two-cylinder engines of the opposed horizontal type, while high-wheeled buggies and buckboards were extensively sold. Four-cylinder water-cooled engines with all the essential elements of the higher priced cars were provided in some of the excellent automobiles of the runabout type, which were put on the market at from \$800 to \$1,000.

During 1908 the new European automobiles also were shown for the ensuing year at the European shows. The greatest interest centered in the small low-priced, medium-powered cars, having either one, two or four cylinders. The chief characteristic of the motors of these foreign cars was the *en bloc* construction of the cylinders, where four cylinders were cast together. Two and three-bearing crank shafts were used, and also annular, ball and plain bearings upon the crank shafts. These small cars in Europe, as well as in the United States, made extremely high speeds during the races of the year.

One of the features of the year was the more extensive use of the automobile as a vehicle of commerce. Not that there was any particular novelty in such applications of the motor vehicle, but its successful use was making such progress as to indicate that tire and other difficulties were being solved. These commercial vehicles during the year had been developed to a system comparable with that of the best pleasure cars, and there was a wide variety of such vehicles on the market. In fact, in the Glidden Tour, one delivery van, subsequently exhibited at the winter's shows, covered 2,000 miles without any adjustment of its engines. The taxicab had become a recognized and profitable institution, and the success of motor cabs led a number of companies, as well as private individuals, to embark in the business. In London the police regulations require a systematic test and official sealing of the indicators, and there was a demand for similar measures in the United States. The use of motor fire apparatus showed a distinct increase during the year, particularly in the case of smaller cities, where by using high-speed cars carrying chemical tanks or gasoline engines of sufficient power, the amount of protection rendered by a fire department, and its radius of effective action, were considerably increased. The city of Spring-

field, Mass., put in operation a number of motor fire vehicles during the year, while extensive use and tests have been made by the post office departments in Europe and the United States.

In Japan and China the automobile had become an established feature, and in the former country the improvement of the roads, which are narrow and heavy, was being demanded. During the year 1908 the automobile gained admittance into Turkey as one of the political innovations of the year, despite, it was said, the prejudice of the Sultan. In Siam, American automobiles were being used and the motor car had the support of the King.

The motor car industry in the United States by 1908 had reached large dimensions. For that year it was estimated that \$122,000,000 worth of cars had been sold, as compared with less than \$8,000,000 in 1903, and the amount of money involved in the production of this output was believed to have exceeded \$467,000,000. This, of course, included the actual money paid, the shift of credits or the turn over of business in the different establishments and the disbursements incident to activities and new developments which resulted from the use of motor vehicles, without considering the detailed expenditures of the business. The actual capital was estimated at about \$200,000,000 and the number of people employed at nearly 110,000. At the beginning of the year it was estimated that 146,000 automobiles were in actual use in the United States, and for their operation were required fuel, lubricants and other supplies, aggregating millions of dollars, as well as the service of chauffeurs and mechanics and various operations incident to replacements and repairs. In addition, the license fees contributed to States and municipalities amount to a considerable figure, while the use of property or private stables supplies another important item. At the end of 1908 it was stated that probably eighty automobile makers were the large and real producers of the country, in addition to whom there were over 200 attempting to manufacture machines, with a greater or less probability of success. During 1908 the business naturally felt the general trade depression, but manufacturers and dealers endeavored to be conservative, and in most cases came through successfully.

The sale of automobiles in the United States during 1908 was estimated at over 52,000. Twenty-nine States required compulsory registration of automobiles, and returns showed that over 250,000 cars had been registered. New York had 64,500 cars; Pennsylvania, 25,129; California, 19,375; New Jersey, 19,021; Massachusetts, 17,439; Illinois, 17,296. During the year the export business in automobiles had been developed to a considerable extent. The estimate of automobiles in the United States constructed and in use at the end of December, 1908, was over 300,000.

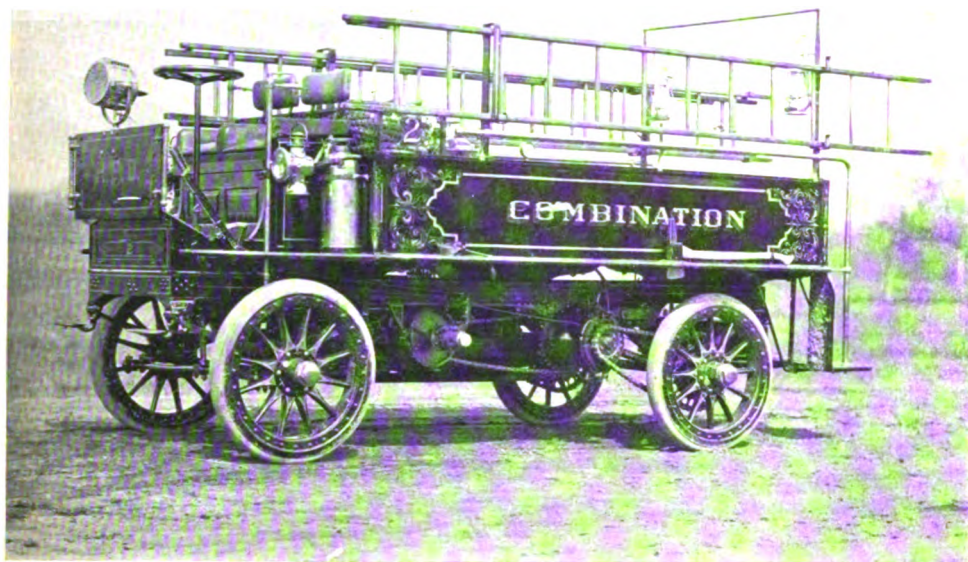
The claims of the American car were being pushed vigorously during the year 1908, and returns showed that while foreign cars were being employed in some of the eastern cities, notably New York, with success and satisfaction, taking the roads of the country by and large, the American cars were found more suitable for the rough work demanded. Accordingly, it was claimed that the developments of the American car had been, from the beginning, on a basis

of practical utility, and despite statements to the contrary, original designs had been evolved rather than an imitation of foreign makers' work.

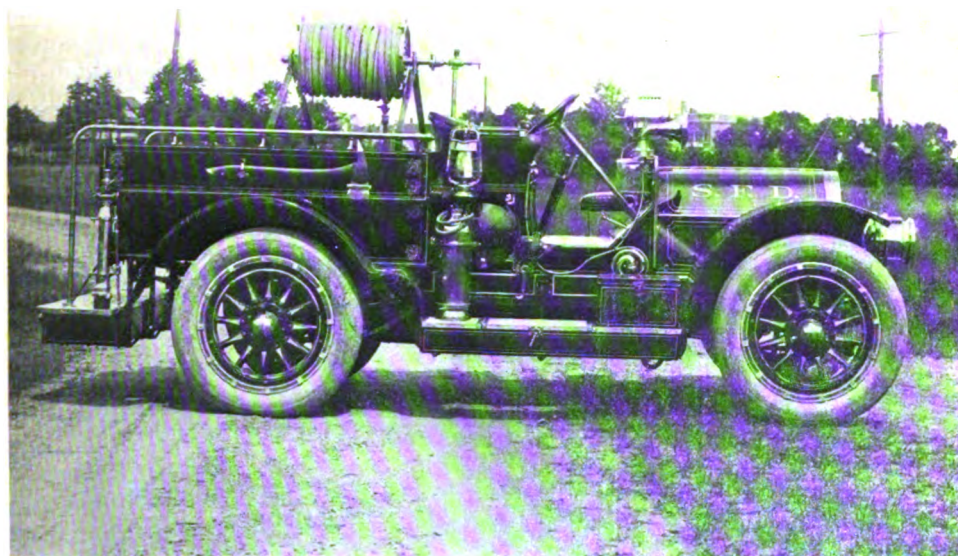
The United States produces annually about 80,000 automobiles, Italy, 25,000, and France, 40,000. Germany and England are also builders, but to a less extent than the two European countries specified. In 1908, 1,416 foreign automobiles were entered at the port of New York. Of this number 533 were pleasure vehicles, consigned to dealers; 553 were taxicabs; 19 trucks and busses; 16 cars in bond; 144 new cars not used, imported by individuals, and 151 old and second-hand cars reimported.

The automobile, like other industries, figured in the proposed revision of the tariff, and a hearing was held on this subject before the Ways and Means Committee in November. There was a duty under the Dingley law of 45 per cent. on foreign automobiles, and a reduction of this to 30 per cent. was demanded on behalf of those interested in the importers' Salon. This reduction was opposed by the American manufacturers, who claimed that they had not made exorbitant profits and that only a relatively small number had made any profits at all. Of the 51 concerns interested in the business in 1902, only 21 were in existence at the end of 1908, while during the five years period from 1902, 155 manufacturers discontinued business. It was claimed that the industry deserved protection, both from the normal production and from the overproduction of the European factories, with cheap labor,—considerably less than half what it is in the United States—low rates of taxes, and preferential rates on manufacturing machinery. The manufacturers claimed that the tariff rates should afford ample protection to American made goods and provide a customs duty on imports equal to the difference in the cost of production in the United States and in Europe. They denied that the Trade Associations were in the hands of trusts and that the individual members were engaged in competitive business, and that prices were not governed by trade agreements.

RACING EVENTS. In the United States the chief racing events of the season were: The Savannah Challenge Trophy Race (360 miles), the Briarcliff Trophy Race (240 miles), the Ames Trophy Race (254.4 miles), the Founders' Week Cup Race (195 miles), the Vanderbilt Cup Race (258.06 miles), and the Grand Prize of America Race (400 miles). The first three events mentioned were all won by Strang, who drove a 50 horsepower Italian Isotta in the Savannah Challenge and Briarcliff Trophy races and a 65 horsepower Isotta in the Ames Trophy. His best average was 54 miles per hour in the Ames Trophy. The Founders' Week Cup Race was won by Robertson in a 40 horsepower Locomobile, his average being 48.25 miles per hour. A part of the fourth Vanderbilt Cup Race was run over the new Long Island Motor Parkway Course, which it was expected would be entirely completed in 1909. This race was won by an American car for the first time, the winner being a 120 horsepower 1906 Locomobile, driven by Robertson. The time was 4 hours, 48 1-5 seconds, an average of 64.3 miles per hour. An Italian Fiat, driven by Wagner, won the first international race for the Grand



1908 Type of large combination fire wagon



Combination Car with chemical tank and hose used by the Springfield, Mass., Fire Department

AUTOMOBILE FIRE APPARATUS

Prize Cup in 6 hours, 10 minutes and 31 seconds, an average of 65.5 miles per hour.

The principal European contests were the Grand Prix in France (478.1 miles), which was won by a 120 horsepower Mercedes, driven by Lautenschlager, in 6 hours, 55 minutes and 43 seconds, an average of 69.24 miles per hour; and the race for the Florio Cup in Italy (328.8 miles), which was won by a 123 horsepower Fiat, driven by Nazarro, in 4 hours, 25 minutes and 21 seconds, an average of 74.3 miles per hour.

The New York to Paris Race, run under the auspices of the *New York Times* and *Le Matin*, Paris, was started from Times Square, New York City, on February 12. The entries included three French cars, one German, one Italian and one United States. The race was won by the United States car, a Thomas, which covered a distance of 12,116 miles in 112 days. The Protos (German) was second, running 10,887 miles in 130 days.

Notable track achievements during the year were the establishment of a record (heavy-weight) of a mile in 51 seconds by a 60-horsepower Fiat, driven by De Palma at St. Paul, Minn., on September 5; and the running of 1,177 miles in 24 hours at Brighton Beach, N. Y., on October 2 and 3, the drivers being Robertson and Lescault and the machine a 50 horsepower Simplex. In the straightaway free-for-all gasoline contests held at Ormond, Fla., on March 5 and 6, Bernin drove a 60 horsepower Renault 100 kilometres in 1 hour, 12 minutes, 56½ seconds and Cedrine drove a 60 horsepower Fiat 300 kilometres in 3 hours, 53 minutes, 44 seconds.

AVIATION. See AERONAUTICS.

AYBTON, WILLIAM EDWARD. An English physicist and electrical engineer, died on Nov. 8, 1908. He was born in London, on Sept. 14, 1847, was educated at University College, and in 1867 entered the Indian Government Telegraph Service. For a year he studied electrical engineering under Lord Kelvin, in 1868 became Assistant Electrical Superintendent, and, in 1871, Superintendent of the Telegraph Department at Bengal. With Lord Kelvin and Professor Fleeming Jenkins, he superintended the manufacture of the Great Western Telegraph cable in 1872. He was professor of physics and telegraphy at the Imperial College of Engineering, in Tokyo, Japan, in 1873-79, when he became professor of applied physics at the Finsbury College of the London Technical Institute, where he remained until 1884. He then became professor of electrical engineering in Central Technical College, at South Kensington, where he served during the remainder of his life. With Professor John Perry, who was his associate in Japan, and afterward in London, he invented many instruments for measuring electrical quantities, and devised some of the earlier applications of electricity to tramways in England. For these and other achievements he was awarded a medal by the Royal Society in 1901. He had published numerous papers on electrotechnics, and also *Practical Electricity* (1888), which has gone through many editions.

BABYLON, EXCAVATIONS IN. See ARCHÆOLOGY.

BACKUS, TRUMAN JAY. An American educator, died on March 25, 1908. He was born in Locke, Cayuga County, N. Y., on Feb. 11, 1842.

He was educated in the public schools of New York City, and at the University of Rochester, where he graduated in 1864. For about a year after the Civil War he was actively interested in educational work among the freedmen, and he was one of the organizers of the first school for negroes in Richmond, Va. From 1867 to 1883 he was professor of rhetoric and English literature in Vassar College, and with Dr. John H. Raymond, the first president of Vassar, and Miss Maria Mitchell, professor of astronomy, aided in the reorganization of the institution. He became president of the Packer Collegiate Institute, in Brooklyn, in 1883, and occupied that position during the remainder of his life. In 1894-97 he was a member of the Brooklyn Civil Service Commission, and he was also associated with the management of other local and state institutions, notably the Long Island City Hospital. In 1905 he was president of the Association of Colleges and Preparatory Schools of the Middle States and Maryland.

BAGDAD RAILWAY. See TURKEY.

BAHAMAS. A chain of twenty inhabited and many uninhabited islands, southeast of Florida, constituting a British colony. Total area, 4,404 square miles. Population (1901), 53,735, mostly negroes. At the end of 1907 the population was estimated at 59,713. Nassau, on New Providence, is the capital. The cultivation of sisal is rapidly increasing, its acreage being now over 25,000. The export of sisal in 1907 was valued at \$46,669, against \$40,140 in 1906. The export of cotton in 1907 was 8,568 pounds. The cultivation of pineapples, oranges, tomatoes, and other fruits and vegetables is also on the increase. Other products are sponges, of which the exports in 1907 were valued at \$129,699, turtle-shell, mahogany, logwood, ebony, tobacco, and cotton.

The total imports and exports in 1907 were valued at \$372,937 and \$233,232 respectively, against \$329,115 and \$221,925 in 1906. The revenue in 1907 was \$89,694; the expenditures, \$79,790; and the public debt, \$66,680. The Governor in 1908 was Sir William Grey-Wilson. A hurricane on September 11-13 caused much destruction. Nearly all the houses of Clarendon were destroyed and a great many vessels were wrecked.

BAILEY, LIBERTY HYDE. An American agriculturist and educator, appointed chairman of the Commission on Country Life, by President Roosevelt, in 1908. He was born in South Haven, Mich., on March 15, 1858; graduated at the Michigan Agricultural College in 1882, and in 1882-83 was assistant to Asa Gray at Harvard. He was professor of horticulture and landscape gardening at his alma mater in 1883-88, and professor of horticulture at Cornell in 1888-1903, when he became director of the College of Agriculture at that university. Professor Bailey is recognized as one of the foremost authorities on scientific farming and gardening, and as a man who makes effective use of the most advanced agricultural theories and processes. He has produced, or edited, much first-class literature on his subjects, including such books as, *Annals of Horticulture in North America for the Year 1893* (1894); *Nursery-Book* (1896); *Principles of Agriculture* (1898); *Sketch of the Evolution of Our Native Fruit Trees* (1898); *Survival of the Unlike* (1901);

Lessons with Plants (1902); *Garden-Making* (1904); *The Nature-Study Idea* (1903); *Plant-Breeding* (1906); *Forcing-Book: a Manual of the Cultivation of Vegetables in Glass Houses* (1908); and *The State and the Farmer* (1908); and he has edited the volumes thus far published of *The Cyclopædia of American Agriculture* (1907). See AGRICULTURE.

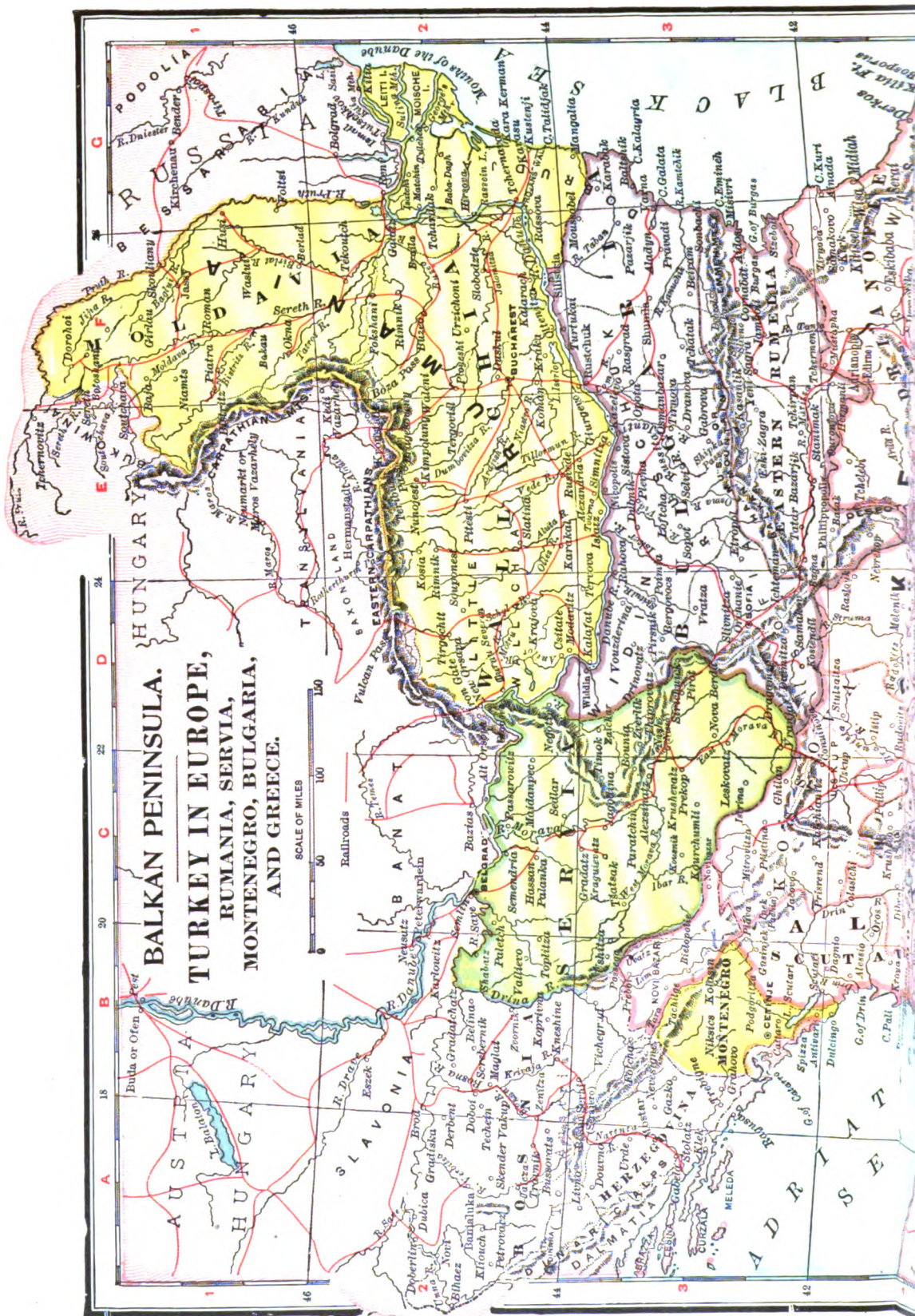
BALCH, GEORGE BEALL. An American naval officer died at Raleigh, N. C., on April 16, 1908. He was born on January 3, 1821, at Shelbyville, Tenn., and entered the navy in 1837 as acting midshipman. In the Mexican war he was present at the capture of Vera Cruz and the attack on Alvarado. He was assigned to the Asiatic squadron in 1850 and was wounded at Shanghai while protecting the foreign residents during the Chinese civil war. At the outbreak of the Civil War he was an instructor at Annapolis, but was immediately ordered to sea duty and served throughout the war on the Atlantic Coast, commanding at different times the *Sabine*, *Pocahontas* and *Pawnee*. While in command of the *Pawnee* he particularly distinguished himself at the battle of Stono, July 16, 1863. He had become commander in 1862, was made captain in 1866, commodore in 1872 and rear admiral in 1878. In 1883 he retired and made his home in Baltimore. For the last six years of his life he was the senior officer on the retired list of the navy.

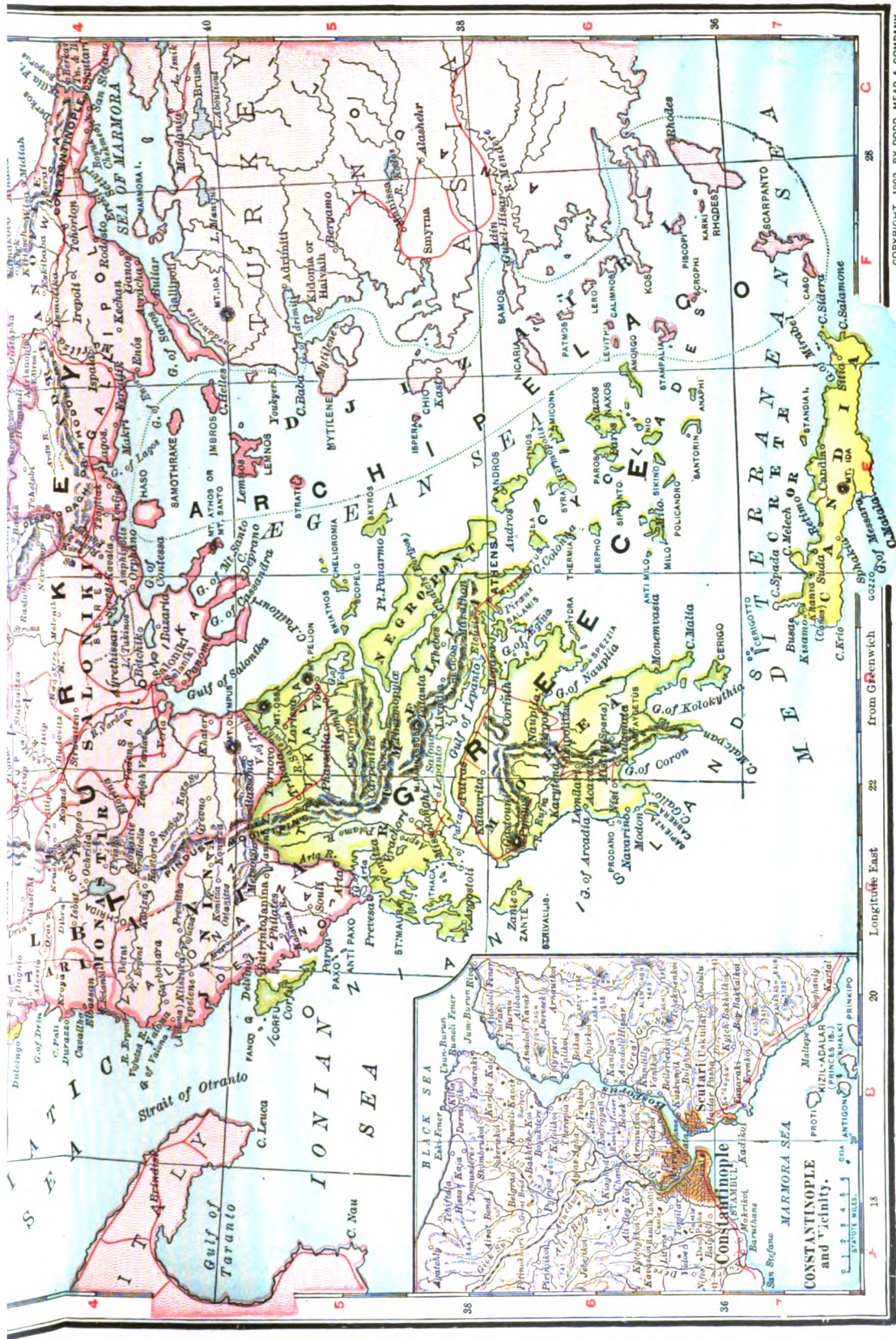
BALKAN QUESTION. The Balkan peninsula, the easternmost of the three great southern peninsulas of Europe, comprises, as ordinarily defined, European Turkey, Bulgaria (including Eastern Rumelia), Servia, Montenegro, Bosnia, and Herzegovina, the Turkish district of Novi-Bazar, and Greece. The history of these separate divisions will be found under their respective titles, and for the course of events down to October, 1908, see especially the articles MACEDONIA and AUSTRIA-HUNGARY. The present discussion is concerned only with the crisis in Balkan affairs that arose in the first week of October. At that time in quick succession occurred three events which occasioned the most serious European crisis in recent years. These were the Bulgarian declaration of independence, the Austrian annexation of Bosnia and Herzegovina and Crete's declaration of union with Greece.

THE BULGARIAN DECLARATION OF INDEPENDENCE. In the middle of September ill feeling arose between Turkey and Bulgaria over the failure of the Grand Vizier to ask the Bulgarian representative to the dinner given by the Turkish Minister of Foreign Affairs in honor of the Sultan's birthday. In answer to the inquiry addressed by the Belgian government to the Porte, it was replied that the dinner was given only to diplomatic representatives having the rank of Minister, whereupon the Bulgarian agent was withdrawn. The Turkish government protested in vain that no offense was intended, but by implying that Bulgaria was regarded as a vassal state Bulgarian pride was hurt, and a feeling of hostility engendered at the very time when the new régime in Turkey should have spared no pains to avoid adding to its difficulties. Its action on this occasion was criticised as a serious mistake, though it was admitted to be the first mistake that the Young Turk party had thus far committed.

Meanwhile a strike had broken out on the Oriental Railway between Sofia and Belgrade, which belongs to Turkey, even after it enters Bulgarian territory, Bulgaria controlling only a small part of the line near its termination at the Bulgarian capital. Turkey's rights in the railway rested on Article 21 of the Treaty of Berlin, which declares that Turkey should retain all rights over the railways of Eastern Rumelia. The operation of the road was given by Turkey to the Oriental Railway Company. Urging as a reason the delay and damage caused by the strike, the Bulgarian government caused the military occupation and operation of the line. After the strike ended Bulgaria still retained control, and when the representatives of the company protested, the Bulgarian government declared that economic interests and the national defense dictated this action; that it must retain control, and that it would negotiate directly with the company and not with the Turkish government. On September 23 a note from the Porte was delivered at Sofia, calling attention to the continued military occupation of the line. On the following day the Bulgarian government replied that it occupied the line under arrangement with the company and was accountable only to the company. The Porte thereupon addressed a note to the foreign ambassadors at Constantinople, calling attention to this violation of the Treaty of Berlin, and requesting their intervention for the return of the road to the control of the company. The Bulgarian government, however, showed no intention of evacuating the line. This action on its part was criticised by the European press as indicating a readiness to profit by the internal difficulties of Turkey, and to embarrass the new régime. This criticism was redoubled by the sudden and unexpected action of Bulgaria a few days later. On Oct. 5, Prince Ferdinand read a solemn manifesto at Tirnovo, the ancient capital of Bulgaria, declaring Bulgaria's independence of Turkey; and was thereupon hailed by the people as Czar of the Bulgars. Bulgaria and Eastern Rumelia were declared to be thenceforth an independent united kingdom. When the news reached Turkey it was received by the press with comparative mildness and the attitude of the Young Turk partly surprised Europe by its moderation. There was no appeal to warlike sentiment. European criticism of Bulgaria's action was directed more against the manner and the circumstances in which it had been brought about, than against the action itself. Bulgaria was already in fact independent. In demanding the name in addition to the reality of independence at this time, she was criticised severely for her apparent desire to add to the difficulties of Turkey, and for her indifference to the interests of her neighbors. It seemed a needless blow at the new régime of Turkey; and it was attributed by many to jealousy of the Turk rather than to patriotism, for it was argued that the same object could have been attained by peaceful negotiations at a later time. It struck at the prestige of the new Turkish government by taking away in appearance at least a part of the empire thus identifying the triumph of the Turkish revolution with the loss of national power.

It will be remembered that the Treaty of San Stefano, which concluded the Russo-Turkish





war, created a great Bulgarian principality extending from the Danube to the Mediterranean. But by the Treaty of Berlin the area of Bulgaria was greatly reduced and the region known as Eastern Rumelia was placed under Turkish administration, though with a modified autonomy. By the Treaty of Berlin, Bulgaria, though it received autonomy, and was guaranteed against Turkish oppression, remained a vassal state of Turkey. In 1885, Bulgaria virtually annexed Eastern Rumelia, which, however, continued to pay tribute to Turkey. Alexander of Battenburg, the Prince of Bulgaria, was appointed Governor-General of Eastern Rumelia for five years, and this appointment was regularly renewed both to him and his successor Ferdinand, becoming a mere matter of form. Through the policy of Alexander and Ferdinand, and the latter's able premier Stambouloff, Bulgaria acquired virtual independence, and in relation with the European powers generally was recognized as an independent state. As to Eastern Rumelia, the appointment of Ferdinand as Governor-General was gradually discontinued and the incorporation of Eastern Rumelia with Bulgaria was recognized as an accomplished fact. Meanwhile there had always been the dream of a Greater Bulgaria with access to the *Ægean* Sea. The Bulgarians were the preponderant element in the population of the Macedonian vilayets. There was always the hope that the Macedonian problem might be solved in Bulgaria's interest. The constant state of warfare in Macedonia and the fear of Turkey had made the building up of an effective army necessary, and this policy had been carried on steadily and with success. At the time of Ferdinand's declaration of independence, the Bulgarian army was reputed to be in excellent condition, and in marked contrast to the ill paid and disorganized military forces of Turkey.

AUSTRIAN ANNEXATION OF BOSNIA AND HERZEGOVINA. On October 7, after a preliminary notice to the Powers of his intention, the Emperor Francis Joseph addressed an imperial proclamation to the people of these provinces, declaring that they were thenceforth his subjects and promising them a constitution. By way of compensation it was announced that the Sanjak of Novi-Bazar would be given back to Turkey. Here again it was more of a change in words than in actual facts. The occupation of Bosnia and Herzegovina had been granted to Austria by the Treaty of Berlin. Since that time the Austrian occupation had continued without question, and large sums of money had been spent in the building of railways and in the economic development of the province. No one supposed that the final outcome of this arrangement would be other than incorporation in the Austro-Hungarian Empire. But the time and occasion of the annexation were unfortunate. In Turkey, grave fear was felt lest the effect of the act would be an injury to the Young Turk party, and aid the cause of the reactionaries. Turkey at once addressed a note to the Powers, complaining of this violation of the Treaty of Berlin. It declared that though it could resort to force on behalf of its rights, it desired to avoid that extremity, and therefore appealed to the Powers. The news caused great excitement in Serbia and Montenegro. In Serbia there was at first a distinct manifestation

of warlike feeling; and in Montenegro it was announced that that country would join Serbia if Austria made war. Prince Nicholas of Montenegro issued an address to his people, saying that if violation of the Treaty of Berlin were permitted to Austria, there was no reason why Montenegro should respect that clause of the treaty (Article 29) which debarred her from rights to a littoral. In both states the fear was expressed that they would find themselves entirely hemmed in by Austrian territory. The ill feeling was intensified by the detention of the Montenegrin envoy, who was on his way to Belgrade; but he was soon set free and the Austrian government afterwards expressed regrets. Meanwhile Great Britain had won the gratitude of Young Turkey by declaring her refusal to recognize the violation of the Treaty of Berlin. In reply to a note from Montenegro protesting against the annexation, Sir Edward Grey declared it to be a violation of the treaty, which could not be altered without the consent of the signatories. Russia assured Serbia and Montenegro that if a conference were held she would safeguard their interests. In reply to the Turkish protest, she declared her acquiescence in the view that the annexation was a violation of the treaty. It was reported that Italy took the same view as to the annexation, and would agree to a conference.

CRETE'S ACTION. Meanwhile, on the same day that the Austrian announcement was made, the Cretan authorities, in response to the popular demand, proclaimed Crete a dependency of Greece. This, also, was immediately followed by a protest from Turkey. The union with Greece was formally voted by the Cretan Chamber on October 12. This, however, did not threaten to cause any serious difficulty. The four protesting powers, namely, France, Great Britain, Russia and Italy, informed the Cretan government that they would consider the question, and make it the subject of negotiations with Turkey, provided that order was maintained in the island and the Moslems were unmolested. Both the Cretan and the Greek governments showed a spirit of acquiescence, and the former, in an address to the people, urged them to maintain order and respect the rights of the Moslems in conformity with the instructions of the protecting Powers.

COMMENTS ON AUSTRIA'S ACTION. Austria's sudden annexation of the provinces caused much comment, most of it sharply critical, and many explanations of her foreign policy were offered. It was commonly remarked that under Baron von Aehrenthal, who was frequently likened to Bismarck, Austria had at length departed from her conservative and cautious attitude and was now embarked on an aggressive policy, or as some called it, a policy of adventure. She was believed to have had for her steady aim the securing of access to the *Ægean* at Salonika, but to have been thwarted in this aspiration for the extension of her territory by internal difficulties and the danger of adding to the already large Slav element in her population, also by the fear of disrupting the Triple Alliance and of trouble with Italy over the Albanian question if Macedonian territory were annexed. It seemed to be to her interest to prevent the political or economic union of the Slav states, lest the presence of a powerful Slav dominion in her neighborhood of the same race as mill-

ions of her own subjects, and the Russians, should endanger her own safety. Hence, she had long been accused of a desire to keep Turkey in an enfeebled condition and to prevent any adjustment of the Macedonian difficulties. To these motives were attributed the agreement with Russia in 1897 for the maintenance of the *status quo* in the Balkans, and the ineffectiveness of all reform measures in Macedonia under the Mürzsteg programme of 1903, whereby Russia and Austria were to act as mandatories for putting the reforms into effect. It was said that neither of these Powers really desired reform, and that all advantages that accrued came from the pressure of Great Britain, France and Italy. Austria's action in the matter of the Novi-Bazar Railway was interpreted by these critics as a betrayal of the Concert of the Powers in the matter of Macedonian reforms (see MACEDONIA). It was pointed out that as soon as any real measures of reform seemed imminent, as, for example, those proposed by Sir Edward Grey and by the Russian government early in the year, Austria, by dealing separately with Turkey in the matter of the Novi-Bazar Railway, made effective co-operation in Macedonia impossible, and this was explained on the ground that Austria feared that the Powers would solve the Macedonian problem by giving the provinces self-government under European protection, and that this would mean Bulgarian control, the Bulgarians being the largest element in the population, and thus raise a barrier of race between Austria and Salonika. By the annexation of Bosnia and Herzegovina, Austria confirmed these critics in their view as to her longcherished designs, and as to her adoption of a forward policy.

Two years under universal suffrage, and the quieting of her race feuds, had placed Austria in a better position for such aggressive action. Russia and Turkey both had revolutionary movements on their hands and the chance of serious opposition was slight. New personal forces had begun to appear in the government, and the Emperor's restraining influence was less manifest in the direction of public affairs. The Archduke Francis Ferdinand, the heir-apparent, was said to be taking a more active part in politics and to be in favor of aggressive action. Baron von Aehrenthal had succeeded Count Goluchowski in 1906, and although at that time it was thought that he would pursue, in general, a conservative foreign policy, which, in the main, would be favorable to Russia, where for many years he was an attaché at the Austrian embassy, his course had been directly the reverse of what was expected. Within two years he had divided Bulgaria and Serbia, endeavored to strengthen the Triple Alliance, terminated the Russo-Austrian agreement of 1897, developed the plan of Austrian expansion by the Novi-Bazar Railway, and finally, by the annexation of Bosnia and Herzegovina, nullified the Treaty of Berlin. The general tendency of this policy had been manifested before the Turkish Revolution. As a result of the Turkish changes it seemed the more desirable. The annexation was interpreted by many as proceeding from the fear that a regenerated Turkey would, by hastening the establishment of order in Macedonia, stand in the way of Austrian expansion; and it was pointed out that the

weakness of Turkey in her experiment with constitutional government, afforded Austria her opportunity. The aims of Austria were, it was said, to foment strife in the Young Turk party and favor reaction. The prestige of this party would be seriously injured if the first result of its success were the loss of part of the Empire. Austria hastened to approve the Bulgarian declaration of independence, and, it was charged, had indicated her approval in advance. By this course she secured the good will of Bulgaria, and forestalled the possible union between Bulgaria and Serbia against her own annexation of Bosnia and Herzegovina. In giving back Novi-Bazar to Turkey she drove another wedge between Slav nationalities, dividing Serbia and Montenegro. The ideal of a Greater Serbia had been gaining strength during the last two or three years, and was now the dream of some nine million persons, of whom two-thirds are Austro-Hungarian subjects. The Serbs in Bosnia and Herzegovina, Croatia, Novi-Bazar, Dalmatia, Serbia, and Montenegro have shown a tendency toward concentration, and there have been signs of a concerted movement against Austro-Hungarian domination. In defense of annexation, on the other hand, it was argued that it could have been no surprise to the signatories of the Treaty of Berlin, as it was the inevitable outcome of the occupation of the provinces accorded to Austria by that treaty. It was not to be expected that after an administration of the provinces for so many years, and the expenditure of vast sums in the railway and economic development of the country, Austria would ever evacuate them. The ostensible reason for proclaiming the annexation at this time was that the inhabitants of the provinces would naturally desire the constitutional privileges possessed by their immediate neighbors in the Empire, and that these could be granted to them only by making them Austrian subjects. As a result of these events, Baron von Aehrenthal became, for the time, the leading and most discussed personage in European politics. Estimates of his statesmanship varied greatly. In some quarters he was hailed as a new Bismarck, and in others regarded as a merely spectacular politician, whose achievements would bring no lasting advantages.

PLANS FOR ADJUSTMENT. The first suggestion for a settlement of the difficulties looked to a conference of the signatory Powers to the Treaty of Berlin. It was urged that, the treaty having been grossly violated by Bulgaria and Austria, such a conference afforded the natural and proper means of readjustment. On the other hand, it was argued that the situation was very different from that which prevailed before the Treaty of Berlin; that recent events had effected no change except in form; that a conference would imply that other matters determined by the treaty were open for discussion, and that the separate nations would gather there, each eager to gain something for itself. It was soon evident, however, that France, Russia and Great Britain desired a conference. When the annexation was announced, M. Isvolsky, the Russian Foreign Minister, was in Paris. He went immediately to London and there conferred with Sir Edward Grey. It was agreed that a conference was necessary, but that it should be limited in scope, confining itself to the recent violations of the treaty. If



Courtesy of the "Review of Reviews"

FERDINAND I., "CZAR OF THE BULGARS"



TWO IMPORTANT FIGURES IN THE BALKAN POLITICAL SITUATION

**BARON LEXA VON AEHRENTHAL, MINISTER OF FOREIGN
AFFAIRS OF AUSTRIA-HUNGARY**

the treaty were open to discussion in other respects Russia would naturally desire to bring up a point of great interest to her, namely, the opening of the Dardanelles to her vessels. This, however, would lead to demands of the other Powers for concessions, and it was understood that Russia would not bring up this question if a conference were held. The British government, however, promised to raise no objections to the opening of the Dardanelles, if Turkey would agree to it, and expressed a willingness even to recognize the right of passage in times of peace to all the riparian Powers on the Black Sea. The proposals as to the points that should be submitted to the conference mysteriously leaked out and were published by the press in substantially their actual form. They included the determination of the status of Bulgaria and of the provinces of Bosnia and Herzegovina; the determination of the financial compensation from Bulgaria to Turkey, and of the nature of the compensation due to Turkey from Austria; the consideration of an arrangement for closing the foreign post-offices in Turkey and modifying the capitulations; the determination of the status of Crete; the modification of the articles of the Treaty of Berlin, affected by the recent events, and the consideration of the question of compensation to Serbia and Montenegro, both of which States desired territorial compensation, Montenegro demanding in addition a change in Article 29 of the treaty. The plan for a conference, however, did not prevent the Powers from advising direct negotiations with Turkey, which would smooth the way for a settlement of the points at issue.

On Oct. 27, Great Britain, France and Russia presented an identical note to the Bulgarian government, advising Bulgaria to send an envoy to Constantinople to arrange an equitable basis of compensation and urging the Bulgarian government to abstain from military measures. This action was approved by the German and Italian governments. The Bulgarian government had already declared its intention to abstain from warlike measures and had afforded evidence of this by disbanding some of the Reserves. Later it disbanded 50,000 of the Reservists and sent an official representative to the Turkish government. Serbia, however, was reported to demand, not only territorial compensation, but the bestowal of autonomy on the provinces, and Montenegro was said to have agreed to this. By Oct. 27, the Austro-Hungarian troops had evacuated Novi-Bazar. In Russia, public opinion, as expressed in the newspapers, seemed inclined to favor a conference, but on the condition that Austria should permit the discussion of the annexation. It was reported that Serbia and Montenegro had formed a military convention. Early in November the Servian Crown Prince and the President of the Montenegrin Upper Chamber visited St. Petersburg and returned to Belgrade on Nov. 7. The Servian Crown Prince, declared soon afterwards that he had obtained from the Czar and the Russian nation expressions of their sympathy and that he hoped for their support in Serbia's struggle, but that even if others did not aid them, the Servians must defend their rights in war. This appeal was received with popular enthusiasm. On Nov. 18 the programme of the Porte for a conference,

as communicated to the Powers, was published. It comprised the following points: (1) The status of Eastern Rumelia; (2) the status of Bulgaria, and the amount due Turkey on account of the unpaid tribute, the share of the Ottoman debt and the arrears of the Eastern Rumelia tribute; (3) the status of Bosnia and Herzegovina; (4) compensation to Serbia and Montenegro; (5) abrogation of Articles 23 and 61 of the Treaty of Berlin, which were virtually annulled by the establishment of constitutional government in Turkey; (6) the modification of the Capitulations. Finally, it was said that Turkey would offer no opposition to the modification of Article 29, proposed by the Montenegrin government.

SITUATION AT THE CLOSE OF THE YEAR. From the first, Austria took the position that the only Power concerned in the question of compensation was Turkey, and that Austria was prepared to negotiate with her on the subject. Negotiations were begun but were interrupted by the friction between the two governments arising from the boycott of Austrian goods in Turkish ports which was started soon after the news of the annexation reached Turkey, and which was very effectively carried out. Consumers refused to purchase Austrian goods and merchants refused to sell them. In the various ports, porters refused to carry the merchandise from Australian vessels to the custom houses. The Austrian government protested, but in spite of the assurances of the Turkish authorities, the boycott continued. In the last week of November the Austrian government declared that it would not resume negotiations unless the boycott ceased, to which the Turkish government replied in effect that the boycott proceeded from private individuals and was beyond the government's control. Nevertheless, in spite of the continuance of the boycott, Austria announced on Dec. 13, that it would resume the interrupted negotiations, in consequence of the declaration on the part of the Porte, that due instruction had been given to the customs authorities and that it would do all in its power to check the boycott. In taking this action Austria declared that the Turkish government would be liable to indemnify Austria for any damages caused by the failure of the Porte to fulfil its obligations. On Dec. 21 the negotiations were resumed. Meanwhile Bulgaria had opened negotiations with the Turkish government in November, and toward the end of that month it was reported that all pending questions between Bulgaria and Turkey had been fully discussed, and principles agreed upon by the representatives of both governments promising a satisfactory settlement. As to the proposed conference, the harmony between the Turkish proposals and those of France, Germany and Russia, seemed to indicate that a conference under these limitations was probable. It was reported that Austria would require a preliminary exchange of views with the European cabinet as to the annexation. At the close of the year the outlook was favorable to a peaceful adjustment of the points at issue, although some incidents caused uneasiness, for example, a protest to the Powers on the part of Bulgaria against what was described as the offensive tone in the Sultan's speech from the throne of the reference to Prince Ferdinand, and at about the same time a meeting of the

merchants of Montenegro, which resolved on a boycott of Austrian goods. In December it was announced that the Montenegrin government in a note to the Powers declared that since Article 49 of the Treaty of Berlin had been cancelled, Spizzsa (in Dalmatia) had no further value to Austria and that Montenegro demanded it. It would not, however, be taken in lieu of any compensation for the Montenegrin and Servian demands.

BALLOON. See AERONAUTICS.

BANKS, SIR JOHN. An Irish physician, died in Dublin, on July 16, 1908. He was born in Dublin, and when he matriculated at Trinity College, in that city, gave his age as 20, from which record it is presumed that he was born in 1811. He was made a fellow of the Royal College of Physicians in 1844, was president of the college in 1869-71, and became widely known because of his skill in diagnosing and treating mental diseases. He was regius professor of physics in the University of Dublin in 1880-98, when he retired on account of failing eyesight. In 1887 he was president of the British Medical Association. He was an early and persistent advocate of hygiene and fresh-air treatment in mental diseases. He wrote much; but perhaps the most interesting product of his pen was his article entitled, "The Writ de Lunatico Inquirendo in the Case of Jonathan Swift, Dean of St. Patrick's, with Observations" (published in the *Dublin Journal of Medical Science*, in 1868), wherein he proved from legal papers that in August, 1741, Dean Swift had been adjudged, by commissioners, to be "a person of unsound mind and memory and not capable of taking care of his person and fortune."

BANKS AND BANKING. At the opening of the year 1908 there was a feeling of trepidation in banking circles. Money was at a premium in the United States, American bankers were making most strenuous efforts to increase

their cash reserves, and European bankers were enforcing abnormally high discount rates as a means of protecting their gold supplies. The deficit in the reserves against deposits in New York City banks, due mainly to shipments to western banks, was wiped out during the first few weeks of the year, and a surplus of \$40,526,000 in reserves was reported on Feb. 1. The importation of gold late in 1907, an unprecedented supply of currency (q. v.), slackness in retail trade and in industrial and commercial operations, and the return of deposits withdrawn in October and November, 1907, resulted in a piling up of cash in banks all over the country. A somewhat similar condition obtained abroad. Cash reserves in the Reichsbank at Berlin increased more than \$100,000,000 during the year, and the gold in the Bank of France increased by more than \$150,000,000. The effect of such large cash holdings was a low rate for money on call, as well as for loans, at New York, and greatly reduced rates at London, Berlin and Paris. Another effect was a splendid market for investments, with rising prices for securities at all important centres (see *FINANCIAL REVIEW*). Bankers in the United States assisted in the refunding of an enormous amount of bonds and short time notes, and in the flotation of many new issues by well-established corporations, but were cautious about making advances for entirely new developments. English bankers, on the other hand, loaned an unusually large amount of money abroad, while French bankers were calling in funds from all parts of the world, both for economic and political reasons. While a conservative feeling was dominant at the close of the year, the banking position throughout the world was remarkably strong.

The banking power of the United States in 1908 as indicated by the capital, surplus and other profits, deposits and circulation of national banks is shown in the following table from the report of the Comptroller of the Currency:

BANKING POWER OF THE UNITED STATES.

	Number	Capital	Surplus, etc.	Deposits	Circulation	Total
National banks	6,824	\$919,100,850	\$748,701,600	\$4,504,817,232	\$613,663,963	\$6,786,283,645
State, etc., banks	14,522	838,058,353	1,012,811,484	8,409,959,961	.....	10,260,829,798
Non-reporting banks.....	b 3,654	76,646,000	32,957,000	485,988,831	.....	595,591,831
Total	25,000	1,833,805,203	1,794,470,084	13,400,766,024	613,663,963	17,642,705,274

a Includes government deposits.

b Estimated capital, etc., based on reports received from private banks.

This total was about 1 per cent. less than that preceding the panic of 1907, the difference being due to diminished deposits, all other items showing increases.

The Comptroller's report shows that, though aggregate bank resources were one-third of 1 per cent. less in 1908 than in 1907, they were more than double the amount in 1900. The aggregate in June, 1908, was \$19,583,410,000, or 114 per cent. more than in 1900. The average per capita of bank resources for the entire country was \$224, the average for New York being \$637, for Massachusetts, \$486, and for California, \$478, these three States ranking highest. The average was lowest for the Southern States, being only \$65.

Aggregate loans in 1908 were \$10,438,000,000, a decrease of 3 per cent. from the 1907 total.

This decrease was divided among all the geographical divisions. Of the total loans, 40 per cent. were made by banks in the Eastern States, 26 per cent. by those in the Middle Western States, 13 per cent. by those in New England, and 10 per cent. by those in the Southern States. The loans of national banks comprised 45 per cent. of the total, of State banks 23.5 per cent., of savings banks 18 per cent. and of loan and trust companies 12.5 per cent.

The aggregate capital stock of the 21,346 banks reporting in 1908 was \$1,757,159,000, a gain over 1907 of \$66,290,000. Of this total one-third, or \$571,034,000, was credited to banks located in the Eastern States, that is, New York, New Jersey, Pennsylvania, Delaware, and Maryland. The capital of banks in the Middle Western States aggregated 28 per cent. of the

total; in the Southern States, 16 per cent.; in the Pacific States, 8.5 per cent.; in the New England States, 7.8 per cent.; and in the Western States, 6.8 per cent. Banks in island possessions had a total of \$7,939,000 capital. The States possessing the largest amounts of banking capital were: New York, \$260,091,000; Pennsylvania, \$225,855,000; Illinois, \$117,670,000; Ohio, \$102,618,000; California, \$97,353,000, an amount somewhat (\$315,100,000) less were the leading States of their sections in this respect.

The individual deposits in all the reporting banks June 30, 1908, aggregated \$12,784,511,000, an amount somewhat \$315,100,000 less than in June, 1907, but 76 per cent. greater than the aggregate individual deposits of 1900, and 28 per cent. greater than those of 1904. These percentages are striking when it is known that the population had increased but 14.5 per cent. since 1900, and money in circulation but 47.8 per cent. The total deposits were distributed among the various kinds of banks in the following proportions: State, 23 per cent.; savings, 27 per cent.; private, 1 per cent.; loan and trust companies, 14.6 per cent.; national, 34.2 per cent. As compared with 1900, the State banks in 1908 held 5.5 per cent. more of the deposits and savings banks 5.8 per cent. less. By geographical divisions the deposits were distributed as follows. New England, 15.3 per cent.; Eastern, 41.8 per cent.; Southern, 7.1 per cent.; Middle Western, 23.2 per cent.; Western, 4.6 per cent.; Pacific, 6.4 per cent.; and Islands, 1.6 per cent. The decrease from the 1907 total was shared by all the divisions except New England, which showed an increase of \$27,800,000. Of the deposits in the New England States, 63 per cent. were in savings and 20 per cent. in national banks; of those of the Eastern States, national banks and savings banks each held 32 per cent., loan and trust companies, 26 per cent., and State banks 10 per cent.; of those in Southern States, national and State banks each held almost one-half; a very similar division obtained in the Middle Western States; of deposits in the Western States, 55 per cent. were in national and 40 per cent. in State banks; and of deposits in the Pacific States almost 40 per cent. were in State banks, and the remainder divided equally between national and savings banks each. Assuming a population of 87,500,000, there were on deposit an average of \$146 for each inhabitant.

The banking power of the world, according to a summary of the most reliable data obtainable in 1909, aggregated \$45,750,300,000, distributed as follows: United States, \$17,642,700,000; British Empire, \$11,157,000,000; Continental Europe; \$5,472,600,000; Central and South America, \$851,700,000; other foreign (except savings) banks, \$1,328,600,000; foreign savings banks, \$9,297,700,000. The total for the world was almost three times as great as in 1890. While the total for the United States increased 242 per cent. since 1890, that of foreign countries increased 159 per cent.

MORSE CONVICTION. An important event in the banking history of the year was the conviction of Charles W. Morse and Alfred H. Curtis, respectively vice-president and president of the National Bank of North America in New York City. The so-called "high finance" operations of Mr. Morse had figured prominently in the

events preceding the crisis of October, 1907. His forced retirement from banking control and the disentanglement of his connection with various banks was attended by the closing of the above named bank on January 27. He and President Curtis were subsequently tried for misappropriation of the bank's funds and for permitting, knowingly, false entries to be made in the bank's books. The evidence indicated that Mr. Morse was the principal owner and the moving spirit in the doings of the bank, hence President Curtis was released under suspended sentence, while Morse was sentenced on November 6 to fifteen years penal servitude in the Federal prison at Atlanta, Ga. The evidence showed that Mr. Morse had acquired control of nine different banks. His method was to buy a controlling portion of a bank's stock from the proceeds either of notes or of another bank's stock. The new stock could be used as collateral to take up his notes or to assist in the purchase of control in another bank. In any case the extension of banking control increased his opportunities for borrowing on American Ice, Consolidated Steamship and United Copper stocks, all of which Morse was manipulating by spectacular and unsound methods. It was shown that Morse obtained loans from his banks by using office boys and stenographers as dummies. It was shown that Morse largely overdraw his account at the North America Bank; and that he borrowed heavily from it during the very week of the panic when the bank's reserves were already below the legal limit.

GUARANTEE OF DEPOSITS. The subject of the guarantee of bank deposits by public authority was prominently before the public in 1908. It became a political issue because of its advocacy by Wm. J. Bryan and the incorporation of a pledge in its favor in the Democratic platform. Immediately following the financial panic of 1907, Mr. Bryan had strongly advocated the inauguration of a plan of government guarantee for bank deposits as a means of preventing runs on banks and the panics among depositors that are so disastrous at a time of unusual financial disturbance. The timeliness of the proposal, the enactment of a law in Oklahoma providing for such a plan, and the prominence of Mr. Bryan in political leadership, thrust the subject into politics, thus making unbiased discussion difficult. The Oklahoma law, passed December 17, 1907, became effective February 17. This law provided that (1) all banks organized under State law should pay to the State Banking Board, consisting of five State officers, an assessment of 1 per cent. on the average daily deposits for the year preceding February 15; (2) the guarantee fund thus raised shall be kept equal to 1 per cent. of total deposits; (3) all State banks shall be subject to rigorous examination, the Banking Board having power to force the discharge of any official found to be dishonest, reckless, or incompetent; (4) on the suspension or failure of any bank, depositors are to be paid in full at once, any amount necessary to this end not supplied by the bank's cash and quick assets, to be taken from the guarantee fund; (5) banks conforming to the act may advertise that their deposits are guaranteed by the State of Oklahoma; (6) national banks may secure the advantages of the act by conforming to its provisions. As a result of the fifth provision, banks in neighboring States found that

their depositors were sending their money to Oklahoma banks, hence there was a strong demand in Kansas and Missouri for similar statutes. Fifty-seven national banks in Oklahoma sought to avail themselves of the advantages noted under (6) above. The Attorney General of the United States informed them that such action was unwarranted. Thereupon a large proportion of them went into voluntary liquidation and reorganization as State banks. The guarantee fund raised under the new law in 1908 was \$150,000, of which \$111,000 was invested in State warrants drawing 6 per cent. interest and redeemable upon presentation. The remainder was placed in State banks.

The most common arguments in favor of the plan were that, the depositor being insured against loss, runs on banks would be stopped; that this plan would bring into the banking business even a better class of men on the average than at present by increasing the interest of each bank in the integrity of all others; that the strengthening of confidence and the avoidance of collapse would be worth to bankers and to business and industry many times the cost; that the plan was in line with the tendency toward increased regulation of capitalistic institutions; and that it harmonized with the tendency of economic life to scatter among many the losses incident to unexpected and unpreventable turns of fortune, as shown in the growth of many kinds of insurance.

At its annual meeting at Denver in October, the American Bankers' Association's Committee on Federal Legislation reported unfavorably to the plan. It said, "If a bank's investments are good, . . . the depositors are amply protected and need no other guarantee. . . . We should discourage unwise extension of credit rather than open the way for reckless banking, which would seem to be the inevitable result of the proposed scheme." In line with this objection it was argued that such a guarantee would tend to check the elimination of unsafe bankers, because the latter would be able to assure depositors that deposits were guaranteed, thus rendering customers less careful in the bestowal of patronage. Moreover such bankers would by this scheme be encouraged to take unusual risks, with the result that the conservative banker would in fact be taxed for the benefit of his less scrupulous rival. It was further contended that a guarantee of deposits would not prevent runs on banks, for such panics are due as much to the desire to get money at once as to get it at all. The guarantee fund would be invested in securities, which would require some time for conversion. That this point is of importance is shown by the extensive runs on savings banks in October, 1907. Bills for the introduction of a plan of State guarantee of bank deposits were presented in the legislatures of New York, New Jersey, Nebraska and Indiana in 1908.

See NATIONAL BANKS; PRIVATE BANKS; SAVINGS BANKS; LOAN AND TRUST COMPANIES; and FINANCIAL REVIEW.

BAPTISTS. A religious denomination which took its name in 1644 from the designation applied to certain congregations of English Separatists, by whom the ancient practice of immersion had been recently restored. In the United States the church was founded by Roger Williams, who established the first congregation

at Providence, R. I., about the middle of the 17th century. There are fourteen divisions of Baptists in the United States, but the so-called "Regular Baptists," North, South, and Colored, differ only in organization, having no doctrinal distinctions. The American Baptist Year Book for 1908 gives to these bodies a total membership of 4,969,524 in 1908. These make up the greater number of communicants of the Baptist churches. All the bodies bearing the name Baptists numbered in 1908, 5,224,305 communicants, ranking third among the religious families of the United States. The designation and number of communicants of the various bodies are as follows: Regular North, 1,155,442; Regular South, 1,981,749; Regular Colored, 1,778,824; Six Principle, 858; Seventh Day, 8,509; Free-Will, 82,303; Original Free-Will, 12,000; General, 29,347; Separate, 6,479; United, 13,209; Baptist Church of Christ, 8,254; Primitive, 126,000; Old-Two-Seed-in-the-Spirit Predestinarian, 12,851; Church of God and Saints of Christ, 8,500.

In the Regular Baptist denomination, there were in 1908, 47,409 churches, 34,038 ordained ministers; in the Sunday schools were 2,241,606 scholars, with 23,103 officers and teachers. The value of the church property was \$121,870,340. The total contributions for all sources during the year was \$22,268,892, divided as follows: Church expenses, \$16,400,949; Sunday school expenses, \$765,708; State missions, \$694,338; home missions, \$664,064; foreign missions, \$820,499; Bible and publication work, \$96,113; education, \$366,323; miscellaneous, \$1,946,182. The foreign missions of the church are carried on in Burmah, Assam, South India, Siam, China, Japan, Africa, Philippine Islands, and Europe. The denomination sustains in foreign countries 1,294 churches and 324 ordained preachers. In these churches are 137,438 members. Home missions are carried on throughout the United States. The missions of the Church are under the conduct of the American Baptist Missionary Union and the American Baptist Home Missionary Society. The Southern Baptist Union, which is the organization of the Southern Baptists, maintains missions in Argentina, Brazil, Mexico, Italy, Africa, China, and Japan. The denomination has organized bodies in each of the States in the Union for the carrying on of missionary, educational and other work. Among other organizations of the church, whose titles sufficiently designate their purpose, are the American Baptist Historical Society; the Woman's Baptist Foreign Missionary Society; the American Baptist Educational Society, and the Baptist Young People's Union of America. Home work is carried on in many forms, although the special organization is the German Baptist Conference. The Swedish Baptist Conference has charge of the work among the Swedes in the Northwest.

The most notable event in the history of the Baptist church in many years was the meeting of the Northern Baptist Convention, held at Oklahoma City, beginning May 20, 1908. This body was organized in May, 1907, as the culmination of a movement which was designed to strengthen denominational unity and efficiency among Baptists throughout the North. At that time a constitution was provisionally adopted, and this was referred to the churches for ratification. This constitution was formally

adopted at the convention. Over 1,000 delegates attended this convention. Professor Harry Pratt Judson, of the University of Chicago, was elected president. The purpose of the convention was to organize in some organic way all the self-perpetuating and more or less independent societies through which the missionary activities of the church have hitherto been carried on and to affiliate this body with the convention. A joint committee of the convention and the societies was appointed to report the particular form which this convention is to take at the meeting in 1909. By a provisional arrangement it was made possible for many of the organizations of the church to become "co-operating societies" by agreeing to regulate expenditures, solicit funds, and incur indebtedness only on the approval of the convention. The convention, on its part, agreed to aid through its executive committee in raising funds needed by each co-operative society.

The purposes of the convention are expressed in the following resolution, which was unanimously adopted: That at the earliest practicable date there should be organic union between the various general denominational societies and the Northern Baptist Convention to the end that the denomination through its convention may be able to determine a suitable related policy for all its general activities, may establish a single co-ordinated budget for the same, and may provide adequate funds required by this budget; and to the further end that it may be possible to put the various agencies out of debt and thereafter to keep them out of debt. A Finance Committee of nine members was appointed. The Executive Committee should nominate a list of not less than three times the number to be appointed. This body is to have charge of the financial affairs of the societies of the church. The three great societies of the denomination, the Missionary Union, the Home Missionary Society, and the Publication Society, took immediate steps to become co-operating societies. Their budgets were passed upon by the executive committee of the convention and thus for the first time there came before the denomination a unified budget. To this budget there was added the amounts of the debts of the society. The convention sent out a plea to the Baptists of the North for \$1,500,000 for the missionary work of the denomination at home and abroad. Commissions were appointed to study and report on the work carried on by the churches along lines of social service and city missions. This Commission is to issue a series of pamphlets upon social aspects of the work of the church. Commissions were also appointed upon the affiliation of Baptist organizations for the relief of dependent ministers and widows and upon the denominational press.

The 63rd anniversary of the Southern Baptist Convention was held at Hot Springs, Ark., commencing May 14, 1908. The first European Baptist Church Congress was held in Berlin in September, 1908.

BAPTISTS, FREE, sometimes called **FREE WILL BAPTISTS**. A religious denomination which corresponds in doctrine and practice to the General Baptists of England, but which was founded in 1780 by Benjamin Randall, who established a church in New Durham, N. H., after he had left the regular Baptist Church

because of his disbelief in the doctrine of election. The Free Baptists are strongest in New England, but have considerable strength in the West. In 1908, the membership was approximately 75,000 with 1,500 churches and 1,250 ministers. During the year \$50,000 was raised for foreign and home missions and for educational work. The General Conference met in Cleveland, O., October 1-7, 1907. A committee appointed in 1904 to confer with other Christian denominations respecting doctrinal and other grounds of union reported at this conference. As a result of the action of this conference, further sessions have been held with the Baptists, and the plan of union for the missionary work of the two denominations has been agreed on by nearly all of the State Associations made necessary by the action of the General Conference.

The Free Baptists maintain several colleges: Bates College, at Lewiston, Me.; Rio Grande College, at Rio Grande, O.; Storer's College, at Harper's Ferry, W. Va.; Parker College, at Winnebago, Minn., and Hillsdale College, at Hillsdale, Mich. A Theological Seminary is maintained in connection with this institution, and Keuka College, at Keuka Park, N. Y., is maintained in connection with the Disciples. The *Morning Star*, edited by George F. Mosher, LL.D., is published at Boston, Mass. Rev. H. M. Ford, D.D., Hillsdale, Mich., is the Corresponding Secretary of the General Conference.

BAPTIST YOUNG PEOPLE'S UNION OF AMERICA. A union of all the young people's societies in Baptist churches for the purpose of carrying on educational work, designed to train young people for efficiency in Christian work, organized in Chicago in 1891. The headquarters of the organization are in Chicago. Its official organs are two monthly magazines, *Service* for the senior department, and *Our Junior* for the junior department. These two organs are now published by the American Baptist Publication Society in Philadelphia. In 1908 there were 600,000 members of the organization. It is international in its scope, including all the provinces of Canada as well as the States of the Union. Rev. Geo. T. Webb is General Secretary.

BAR ASSOCIATION, AMERICAN, was organized in 1878 as an association of the leading lawyers of the United States who meet annually for the purpose of discussing matters of interest to the profession. The object, as stated in the constitution, is to advance the science of jurisprudence, promote the administration of justice and uniformity of legislation throughout the union, uphold the honor of the profession of the law and encourage cordial intercourse among the members of the American Bar. Membership, about 3,500. Attendance at meetings, 300 to 400. The thirty-first annual meeting was held at Seattle, Wash., August 25, 26, 27, and 28, 1908. The president, Jacob M. Dickinson of Chicago, delivered the president's address, including a summary of noteworthy changes in statute law during the year. The annual address was delivered by George Turner of Spokane, Wash., on "The Acquisition of the Pacific Northwest." Papers were read by Judge C. H. Hanford of Seattle on "National Profession and the Increasing Responsibilities of Our National Judiciary;" by Frederick Baus-

man of Seattle on "Are Our Laws Responsible for the Increase of Violent Crime?" and by Edgar H. Farrar of New Orleans on "Extension of Admiralty Jurisprudence by Judicial Interpretation." The Committee on Code of Professional Ethics reported a Code of Ethics which was finally adopted. The Committee to Suggest Remedies and Formulate Proposed Laws to Prevent Delay and Unnecessary Cost in Litigation presented a report with several proposed statutes. Other important committee reports were presented by the Committees on Commercial Law, International Law, Insurance Law, Uniform State Laws, and Patent Law, the latter relating to the establishment of a Court of Patent Appeals. In connection with the meeting of the American Bar Association, there were meetings of the Section of Legal Education, Section of Patent, Trade-Mark and Copyright Law, the Comparative Law Bureau, the Association of American Law Schools, and the Conference of Commissioners on Uniform State Laws, proceedings of all of which are embraced in the American Bar Association reports. The officers elected for 1908-1909 are as follows: President, Frederick W. Lehmann, St. Louis, Mo.; Secretary, John Hinkley, 215 N. Charles St., Baltimore, Md.; Treasurer, Frederick E. Wadhams, Tweddle Bldg., Albany, N. Y.

BARBADOS. The most easterly of the West Indian Islands, a British possession. Area, 166 square miles. Population (1907), estimated at 194,518. Bridgetown, the capital, has about 30,000 inhabitants. About 100,000 acres are in cultivation. The principal products are cotton (947,140 pounds in 1907), sugar, molasses, tobacco, coffee, indigo, and arrowroot. Sugar-cane covers 35,000, and cotton 7,000 acres (16 acres in 1903). Manjak, a variety of bitumen used for fuel, is obtained. Oil indications cover an area of 25 square miles, and the oil strata are supposed to be coextensive with the island. The imports and exports in the calendar year 1907 amounted to \$6,188,112 and \$4,551,578 respectively, against \$5,802,663 and \$4,540,434 in 1906. The principal imports in 1907 were: Live animals, foods, drinks, and narcotics, \$2,453,754; textiles, \$1,175,285; coal and coke, \$444,808; manures and fertilizers, \$292,311. The principal exports in 1907 were: Sugar, \$1,267,333; molasses, \$1,133,543; cotton, \$405,695; manjak, \$33,726. The trade with the principal

countries of origin and destination in 1907 was as follows:

From and to	Imports	Exports
Great Britain	\$2,716,320	\$ 885,640
Canada	496,122	1,552,428
British West Indies....	283,419	656,474
British Guiana	223,876	85,410
United States	2,242,194	349,129

During the fiscal year 1907-8 the imports were valued at £1,271,530 (£558,148 from Great Britain) and the exports, £935,256 (£181,981 to Great Britain). By a convention between Great Britain and France in March, 1908, the "colonial products" of Barbados are admitted into France and its colonies at the lowest rates of duty applicable to similar products of other foreign origin; and similarly the products and manufactures of France and its colonies into Barbados. The convention is to remain in force until one year after denunciation by either contracting party. The tonnage entered and cleared in 1907 was 1,736,363 (1,573,810 British). There are 28 miles of railway owned by a company. The revenue in 1907-8 was £209,818; the expenditure, £188,296; and the public debt, £404,900. The Governor in 1908 was Sir Gilbert Thomas Carter.

BARBIER DE MEYNARD, CHARLES ADRIEN CASIMIR. A French Orientalist, died on March 31, 1908. He was born at Marseilles in 1827. After serving in the French legation to Persia he became professor of Turkish in the School of Living Oriental Languages at Paris. He was elected professor of Persian at the Collège de France in 1875, and of Arabic (*ibid.*) in 1885. At the time of his death he was director of the School of Living Oriental Languages. His publications include: *Geographical, Historical and Literary Dictionary of Persia and Adjacent Countries* (1861); and *Turkish-French Dictionary* (1885-87).

BARLEY. The total production of barley in 1908 amounted to 166,756,000 bushels. This crop was secured on 6,646,000 acres, the average yield per acre being 25.1 bushels, and the total value of the crop based on the average price, 55.4 cents per bu. on Dec. 1, as shown by agricultural statistics, reached \$92,442,000. The year 1908 held the record for acreage, 1907 for total farm value with \$102,290,000, and 1906 for production with 178,916,000 bushels. The acreage, yield, etc., of the principal barley-producing States taken from statistics published by the Department of Agriculture are given in the following table:

States	Acreage	Yield per acre	Production	Price per Bu. Dec. 1	Total Value Dec. 1
	Acres	Bus.	Bus.	Cents	Dollars
Minnesota	1,300,000	25.0	32,500,000	49	15,925,000
California	1,082,000	23.5	25,427,000	74	18,816,000
Wisconsin	825,000	30.0	24,750,000	58	14,355,000
South Dakota	928,000	26.5	24,592,000	47	11,558,000
North Dakota	940,000	19.5	18,330,000	46	8,432,000
Iowa	500,000	37.0	13,500,000	51	6,885,000
Totals	5,575,000		139,099,000		75,971,000

These six States contained about 83% of the total acreage and produced about the same percentage of the total crop. The highest average yields for the year among the States and Territories are recorded for Utah, New Mexico, Idaho, Arizona, Montana, and Wyoming, the quantities being 45, 42, 41, 38, 35, and

35 bushels per acre respectively. The barley crop of the world for 1907 was 1,267,814,000 bushels, of which North America produced 205,832,000 bu., Europe 911,451,000 bu., Asia 102,939,000 bu., Africa 44,205,000 bu., and Australasia 3,387,000 bu. In Europe the principal barley-producing countries and their yields in

1907 were as follows: Russia (European) 344,104,000 bu., Germany 160,650,000 bu., United Kingdom 69,258,000 bu., and Spain 53,598,000 bu. In 1908 the annual barley and hop exposition held in Berlin in October assumed an international character which resulted in a marked increase in the number of entries. The barley samples exhibited numbered 750 as against 240 in 1907. Much interest was shown in the comparison of the samples from the different countries with reference to their qualities for brewing purposes. The exhibition did not include barley samples from the United States. European plant breeders interested in the improvement of barley pointed out that selection to increase the productivity of the crop also improves its quality within certain limits; that a high starch content and a low protein content have a marked influence on the yield; and that the uniformity in size, shape, and quality of the kernel, so important to a good brewing barley, can be secured and maintained by keeping the varieties pure and by pedigree breeding. A good barley for brewing purposes was described as consisting of medium-sized kernels, well-filled, having fine husks, a high degree of mealiness, and a thin gluten layer. Long, loose, strongly nodding heads and a thin, fine stem are considered as correlated with good brewing quality. Among the results secured at experiment stations in the United States may be mentioned that hull-less barley grown experimentally under semi-arid conditions and under dry-farming methods has given on an average about 21 bu. per acre. At the Wyoming station three irrigations supplying 19.56 inches of water proved most satisfactory in barley growing. The cost of irrigating, harvesting, threshing, and hauling this particular crop amounted to \$12.27 per acre. In Alaska, Lapland and Mansbury barley among several varieties give promising results. In parts of the Mississippi valley the practice of sowing hull-less barley as a nurse crop for alfalfa is coming into use.

BAROTSELAND. See RHODESIA and BRITISH SOUTH AFRICA.

BARYTES. See MINERAL PRODUCTION.

BASEBALL. The professional baseball season of 1908 was the most successful financially of any in the history of the game. This was in large measure due to the closeness of the pennant race both in the National and the American Leagues. In the former organization the three leading teams were separated by only seven points at the close of the season, and in the latter the margin of difference between the first and third teams was but nine points. In the National League Chicago won the pennant for the third consecutive time with 99 games won and 55 games lost. New York and Pittsburg were tied for second place, each club having won 98 and lost 56 games. New York would have won the pennant had not Merkle failed to touch second base after his hit with two out had brought in the winning run in the Chicago-New York game played at the Polo Grounds on Sept. 23. The National Commission directed that this game should be played over at New York on October 8, Chicago winning by the score of 4 to 2. The standing of the other

clubs in the National League at the close of the season in point of games won and lost was as follows: Philadelphia won 83 and lost 71; Cincinnati won 73 and lost 81; Boston won 63 and lost 91; Brooklyn won 53 and lost 101; St. Louis won 49 and lost 105. Detroit again carried off the championship in the American League, winning 90 games and losing 63. Cleveland was second with 90 games won and 64 lost, and Chicago was third with 88 games won and 64 lost. The remaining teams in the American League finished as follows: St. Louis won 83 games and lost 69; Boston won 75 games and lost 79; Philadelphia won 68 games and lost 85; Washington won 67 games and lost 85; New York won 51 games and lost 103. As in the year 1907, the Chicago Nationals and the Detroit Americans were the contenders in the World's Championship series, in which Chicago won four of the five games played. The score follows: Chicago 10, Detroit 6; Chicago 6, Detroit 1; Detroit 8, Chicago 3; Chicago 3, Detroit 0; Chicago 2, Detroit 0. Both the attendance and the receipts of the Championship series showed a decided falling off in comparison with the previous year, for which fact the marked superiority of the Chicago team was doubtless largely responsible. The total attendance at all games of the two major leagues was 7,069,122, an increase of more than 900,000 over 1907. The American League games drew 3,554,837 people and the National 3,514,285. The champion batsman of the National League was Wagner of Pittsburg, who made 201 hits out of 568 times at bat. Criss, of St. Louis, the leading batsman of the American League, made 28 hits out of 82 times at bat. The real leader in the American League, however, was Cobb, of Detroit, who played in 86 more games than Criss, and made 188 hits out of 581 times at bat. Reulbach, of Chicago, was the most successful pitcher in the National League, winning 24 games and losing 7. The best pitching record in the American League was that of Walsh, of Chicago, who won 40 games and lost 15. The pennant winners in the more important minor leagues in 1908 were: American Association, Indianapolis; Eastern League, Baltimore; Southern League, Nashville; Western League, Sioux City; Tri-State League, Williamsport. An important change in the scoring rules was made in 1908 by crediting a batsman with a sacrifice hit on a fly to the outfield, which scores a runner from third base. The champion college baseball team was Princeton, which won the series with Harvard, Yale, Cornell, and Pennsylvania. The scores in Princeton's most important games were: Princeton 3, Harvard 0; Princeton 4, Harvard 0; Princeton 3, Yale 2; Princeton 2, Yale 8; Princeton 4, Yale 2; Princeton 8, Pennsylvania 6; Princeton 3, Pennsylvania 1; Princeton 5, Cornell 4; Princeton 2, Virginia 6; Princeton 1, Virginia 0; Princeton 2, Virginia 0; Princeton 10, Georgetown 3; Princeton 5, Amherst 7. Harvard's principal games were: Harvard 5, Yale 1; Harvard 9, Yale 5; Harvard 0, Yale 3; Harvard 0, Princeton 3; Harvard 0, Princeton 4; Harvard 1, Cornell 0; Harvard 4, Brown 0; Harvard 1, Brown 3; Harvard 4, Holy Cross 3; Harvard 4, Dartmouth 6; Harvard 9, Dartmouth 1; Harvard 2,

Georgetown 2. Yale, in addition to losing both the Princeton and the Harvard series, was defeated by Fordham 1 to 4; Pennsylvania 2 to 3; Dartmouth 2 to 3; Holy Cross 0 to 1. Yale defeated Manhattan 3 to 2; Columbia 7 to 4; Army 6 to 2; Georgetown 4 to 2; Brown 2 to 1, and 9 to 0; Pennsylvania 3 to 1; Amherst 3 to 1. Pennsylvania defeated Amherst 2 to 1; Lafayette 5 to 4; Georgetown 5 to 3; Virginia 6 to 3; Yale 3 to 2; Columbia 5 to 4; Cornell 11 to 5 and 9 to 4; Brown 4 to 1; Holy Cross 4 to 2. Pennsylvania was defeated by Carlisle 2 to 6; Georgetown 2 to 5; Virginia 5 to 7; Navy 0 to 2; Princeton 6 to 8; Yale 1 to 3; Columbia 1 to 4; Dartmouth 3 to 4. Fordham lost only one game during the season, that with Holy Cross. Among the Western colleges the best records were made by Illinois, Minnesota, Wisconsin, and Chicago. The leading Southern colleges were Georgetown, Virginia, West Virginia, and Georgia.

BASKETBALL. The Intercollegiate Basketball Association championship for 1908 was won by the University of Pennsylvania. The standing of the teams at the close of the season was as follows: Pennsylvania won 8 games and lost 0; Columbia and Yale won 5 each and lost 3; Cornell and Princeton won 1 each and lost 7. In the Western Collegiate League, Chicago and Wisconsin won 7 games each and lost 1; Illinois won 4 and lost 4; Minnesota won 2 and lost 6; Purdue won 0 and lost 8. The tie for the championship between Chicago and Wisconsin was played off, Chicago winning by the score of 18 to 16. Chicago and Pennsylvania then played two games for the National Collegiate championship, both of which Chicago won. The New England championship was won by Williams.

BASUTOLAND. A British inland protectorate in South Africa. Area, 10,293 square miles; population (1907), estimated at 351,000. Maseru, the capital and largest town, has 1,300 inhabitants. In 1904 there were 895 whites (200 in Maseru). The climate is excellent, water is abundant, and the country is admirably adapted for the growth of cereals. The protectorate is included in the South African Customs Union (see **BRITISH SOUTH AFRICA**.) In 1907 the imports amounted to £238,600, and the exports to £248,500. The imports are chiefly blankets, hardware, plows, and groceries; the exports cattle, horses, grain, and wool. A railway of 16 miles connects Maseru with the the Bloemfontein-Modderpoort line. The revenue in 1907-08 was £116,529; the expenditure, £126,603. The revenue enue in 1907-08 was £116,529; the expenditure, £126,603. The revenue is derived mainly from the hut tax, post office, licenses, and customs. The Resident-Commissioner—in 1908, H. C.

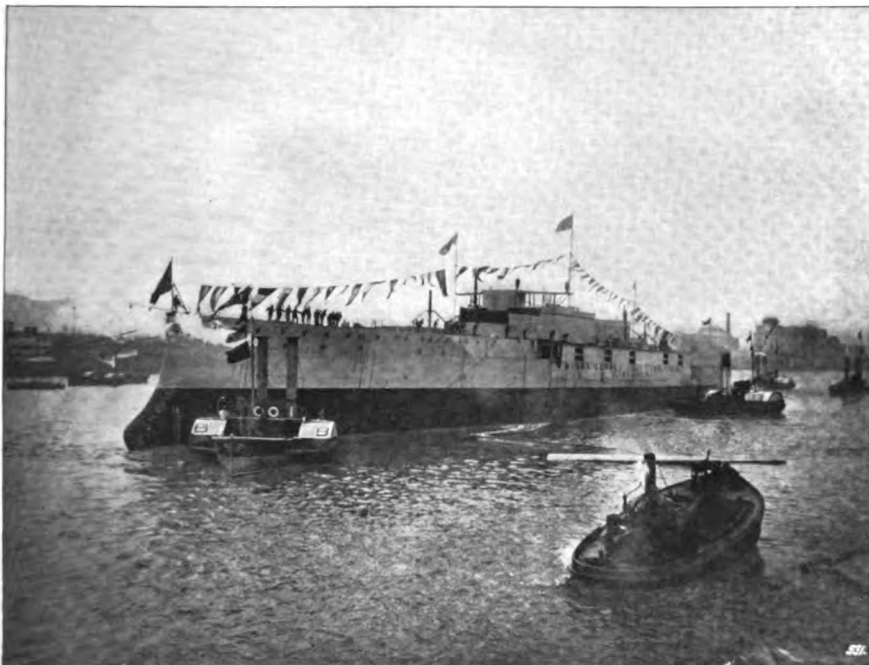
Soley—is under the direction of the High Commissioner for South Africa.

BATCHELLER, GEORGE SHERMAN. An American jurist and diplomat, judge of the International Tribunal at Cairo, Egypt, died at Paris on July 2, 1908. He was born at Batchellerville, N. Y., on July 25, 1836, graduated at Harvard in 1856, and two years later was admitted to the bar. In 1859 he was elected to the New York State Assembly, in which body he also served in 1873, 1874, 1886, and 1887. He joined the Union army in 1862 as major of the One Hundred and Fifteenth New York Regiment, of which he later became lieutenant-colonel. During his first year of service he was taken prisoner at Harper's Ferry, but was exchanged the following year and after a short service with the Tenth Army Corps was made deputy provost marshal-general of the Department of the South. After the war, as inspector-general of New York, he reorganized the National Guard and was also in charge of the defense of the frontier of the State against the Fenians. In 1875 President Grant appointed him judge of the International Tribunal at Cairo, Egypt, of which body he became president. After ten years service in this court, he resigned, and in 1899 was appointed first assistant secretary of the treasury. In 1891 he became minister to Portugal and two years afterward was sent to Paris as American diplomatic representative to Europe. He was president of the Universal Postal Congress held at Washington in 1895, and in 1898, at the special request of the Egyptian government, was again appointed to the International Tribunal. He was promoted to the Supreme Court of Appeals in 1902.

BATES, JOSHUA H. A veteran of the Seminole war, died at Cincinnati, Ohio, July 26, 1908. He was born in Boston, March 5, 1817, and graduated from West Point in 1833. He served in Florida for a time and was present at the battle of Loca-Hatchee on Jan. 24, 1838. He resigned from the army in 1842 and began to practice law in Cincinnati. As a brigadier-general of Ohio militia he was prominent in organizing the State forces at the beginning of the Civil War. He also took part in the defense of Cincinnati in 1862. He served two terms in the Ohio Senate, 1864-66 and 1878-80.

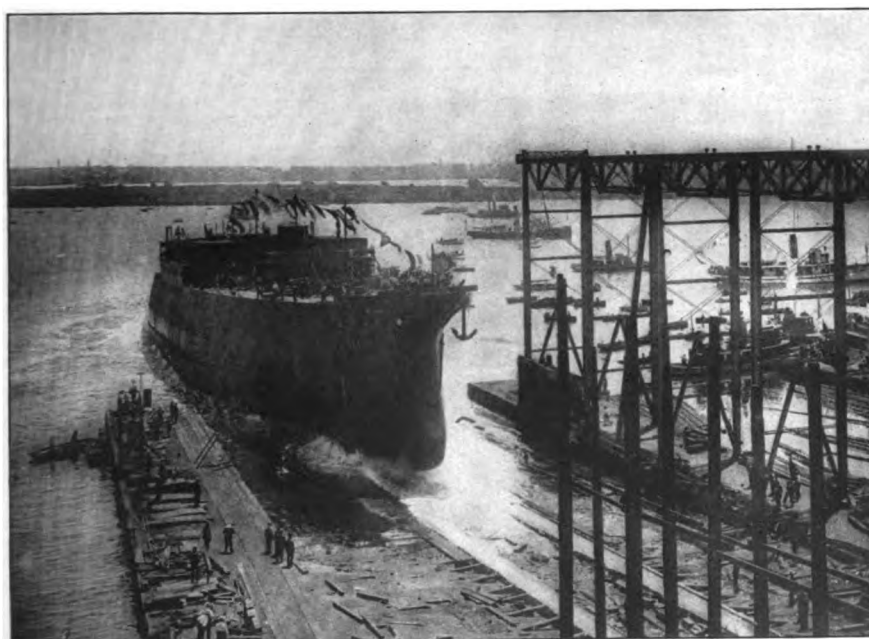
BATTLESHIPS. All the great naval powers, except France, were building "Dreadnoughts," although no battleship of this type had been completed outside of England up to the end of the year. The *Dreadnought* of 1906 did not mark a revolution, but a reversion. Battleship development can best be seen by reference to English construction, as shown in the following table:

Name.	Completed	Displacement (Tons)	Battery.
Devastation	1873	9,330	4-12", 35 ton M.L.R.
Dreadnought	1875	10,820	4-12.5", 38 ton M.L.R.
Inflexible	1881	11,880	4-16", 80 ton M.L.R.
Royal Sovereign	1892	14,150	4-13.5" B. L. R., & 10-6" B. L. R.
Majestic	1895	14,900	4-12", 12-6"
King Edward	1905	16,350	4-12", 4-9.2", 10-6"
Dreadnought	1906	17,900	10-12"
Lord Nelson	1908	16,500	4-12", 10-9.2"



Courtesy of "Cassier's Magazine"

**THE "MINAS GERAES," A BATTLESHIP OF THE "DREADNOUGHT" TYPE
BUILT FOR THE BRAZILIAN NAVY**



Courtesy of "Cassier's Magazine"

LAUNCH OF THE UNITED STATES BATTLESHIP, "SOUTH CAROLINA"

The all-big-gun idea goes back to the *Devastation*, designed in 1869, which, besides her four 12-inch muzzle-loading rifles, carried only Hotchkiss 3-pounders and 6-pounders, and machine guns. From 1893 to 1901, the batteries of battleships remained the same, four 12-inch, and twelve 6-inch guns, although improvements in ordnance made the later guns more powerful than those of the *Majestic*. The eight *King Edwards*, estimates of 1901-2, embodied improvements in the manufacture and distribution of armor. The 6-inch gun with its 100-pound shell had become ineffective even against 6 inches of Krupp armor at 3000 yards. The 9.2-inch gun fires a 380-pound shell. The three calibre battery of the *King Edward* class resulted in confusion in fire control, as the spotters were unable to distinguish the splashes of the different sizes of shells; and also in complicated stowage of ammunition. Better armor, and the fact that future battles will be fought at long range, tended to make the 6-inch gun obsolete, except for torpedo defence, for which it has, so far, been considered too large. But it was fire control that was largely responsible for the all-big-gun ship. The *Bellerophon*, *Temeraire*, and *Superb* 18,600 tons, were appropriated for in 1906-7; the *St. Vincent*, *Collingwood*, and *Vanguard*, 19,250 tons, in 1907-8; the main battery was the same as that of the *Dreadnought*. The torpedo defence battery has been improved from twenty-seven 12-pounders in the *Dreadnought* to twenty 4-inch 25-pounder guns in the later battleships. Cost increased with tonnage. Two *Royal Sovereigns* were built for the cost of one *Dreadnought*; and four *King Edwards* for the cost of three *Dreadnoughts*.

The United States was the first great naval power to follow the lead of England, with the *Michigan* and *South Carolina*. The main battery of each consists of eight 12-inch guns in pairs in turrets on the centre line. Turret No. 2 fires over turret No. 1; No. 3, over No. 4. On Dec. 31st, 1908, the *Michigan* was 85.1 per cent. completed; the *South Carolina*, 75.1 per cent. The *Delaware* and *North Carolina* were appropriated for in 1907; the *Utah* and *Florida*, in 1908. These four ships are of 20,000 tons, each carrying ten 12-inch guns in pairs, in turrets on the centre line. The four later ships are better protected than the *Michigan* and *South Carolina*. They also have a better torpedo defence battery fourteen 5-inch 70-pounders against the twenty-two 14-pounders of the *Michigan* and *South Carolina*. The fire control stations are on two separate latticed steel towers. On Dec. 31st, 1908, the *Delaware* was 59 per cent. completed; and the *North Dakota*, 67.4 per cent. The *Florida* and *Utah* were but just commenced.

Although Germany in 1908 was building "Dreadnoughts," discussion was very active as to the wisdom of the step. The same arguments that had been heard in England and the United States for the three years previous, for and against, were being used in Germany. Since Mar. 1907, Germany had laid down seven battleships and three armored cruisers of the largest and most powerful types. The German programme, as amended, provided for laying down, in each of the years 1909-11, three battleships and one armored cruiser. The battleships *Nassau*, launched Mar. 7th, 1908, and *Westphalen*, launched July 1st, 1908, carry

twelve 11-inch guns each; speed, with reciprocating engines, 19 knots; 20,000 H.P. The 11-inch gun fires a 760 lb. shell; the British 12-inch gun, an 850-lb. shell; but its muzzle velocity is 3250 ft. sec., to the British gun's 2900 ft. sec. The secondary armament (also for torpedo defense) consists of twelve 6.7-inch guns (132-lb. shell), capable of penetrating 5 inches of Krupp armor at 5,000 yards. Great secrecy was being maintained about all the new German ships; but it was believed that the *Rheinland* and *Ersatz Baden* of the 1907 programme would displace 17,960 tons; speed, 20 knots; H.P., 22,000; and that the *Ersatz Oldenburg*, *Ersatz Beowulf*, and *Ersatz Siegfried* of the 1908 programme would also be of 17,960 tons, but would carry 12-inch instead of 11-inch guns.

Before 1905, all Japanese armored ships were designed and built abroad. The *Satsuma*, launched in 1906, and the *Aki*, launched in 1907, had not been completed in 1908. The *Satsuma*, 19,350 tons, has reciprocating engines of 17,500 H.P.; speed, 20 knots; the *Aki*, 19,800 tons, has Curtis turbines, 22,000 H.P.; speed, 20.5 knots. It was announced in November, 1908, that the armament of each would be ten 12-inch, 50 calibre, and 24 rapid fire guns, probably ten 6-inch and fourteen 4.7-inch guns. Two all-big-gun battleships were being built at Kure and Yokosuka, of 20,800 tons, but details about them were kept secret.

Brazil had three "Dreadnoughts" of 19,500 tons under construction in England, the *Minas Geraes*, *São Paulo*, and the *Rio de Janeiro*. The battery of each consists of twelve 12-inch guns (10 on the broadside), and twenty-two 4.7-inch; the main armor belt is only 9 inches thick.

France was the only great naval power in 1908 not building "Dreadnoughts." For the *Danton*, *Mirabeau*, *Diderot*, *Condorcet*, *Voltaire*, and *Vergniaud*, the Superior Council decided, in 1906, in favor of four 12-inch and twelve 9.4-inch guns; that is, a copy of the *Lord Nelson*, with two 9.4-inch guns added; displacement, 18,400 tons; speed (Parson's turbines), 19.25 knots.

CRUISER BATTLESHIPS. The cruiser battleships are really battleships of great speed, capable, not only of taking their place in the line of battle, but also of scouting, and of attacking and defending commerce. Armor protection has to be sacrificed somewhat to obtain high speed, and great fuel capacity. Here England again led the way. In fact, while the *Invincibles* were building, the world was misled by their designation as armored cruisers. The *Invincible* class (*Invincible*, *Inflexible*, and *Indomitable*, 17,250 tons), launched 1907, carry eight 12-inch guns; with sixteen 4-inch guns for torpedo defense; 41,000 H.P. (Parson's turbines); speed, 27 knots on trial trip, 25 knots being designed; main armor belt, 7-inch Krupp armor; average cost, £1,725,000. Germany followed England's lead in 1907 with "F" of 18,700 tons; speed, 25 knots; turbine engines of 45,000 H.P.; twelve 11-inch guns, with 24-pounders for torpedo defense; 8-inch armor belt, 6 inches at bow, and 4 inches at stern. Another, "G," was building in 1908.

BAUXITE. See MINERAL PRODUCTION.

BECHUANALAND. A British protectorate in South Africa. Area, about 275,000 square miles. Population, (1907), about 133,100, including over 1,000 whites. Serowe, the chief town of the Bamangwato tribe, has 17,000

inhabitants. The natives are cattle-rearing and agricultural. The exports are mostly animals, skins, horns, etc. The protectorate is included in the Customs Union of British South Africa (q. v.). It is crossed by the railway and telegraph line from Cape Colony to Rhodesia. The administration is by a Resident Commissioner—in 1908, Lieut.-Col. F. W. Panzera—who resides at Mafeking, Cape Colony, and is under the supervision of the High Commissioner for South Africa. The natives are under the immediate rule of the tribal chiefs. Civil suits between natives are tried by native chiefs, with an appeal to magistrates' courts, where suits between natives and whites are tried. In 1907-8 the revenue was £31,563; the expenditure, £75,851. The deficit was covered by an Imperial grant-in-aid.

BEQUEREL, ANTOINE HENRI. A distinguished French physicist, discoverer of the "Becquerel rays," died on Aug. 25, 1908. He was born in Paris on Dec. 15, 1852, a son of Alexandre Edmond Becquerel (1820-91), who made important researches in phosphorescence; and a grandson of Antoine César Becquerel (1788-1878), an able investigator of electrical and electrochemical phenomena. He studied at the Lycée, Louis le Grand, and at the École Polytechnique and in 1875 became a government engineer of bridges and roads. As early as 1875 and 1876 he had published important papers on magnetic rotary polarization, and in 1879-83 he prepared, with his father, a series of discussions of the temperatures of the surface of the earth, and to a depth of 30 metres below the surface. In his investigation of the subject of phosphorescence he became especially interested in the phenomenon (discovered by Goethe) of the fading of the light of a phosphorescent body when exposed to the red rays at the hot end of the spectrum. In 1886-90 he experimented on the absorption of light in crystals. In 1892 he became a professor in the Musée d'Histoire Naturelle, in 1894 engineer-in-chief of bridges and roads, and in 1895 he was appointed professor in the École Polytechnique.

Becquerel published in the *Comptes rendus* of Feb. 24, 1896, the first of his experiments which resulted in the discovery of the so-called Becquerel rays and the establishment of the new and highly important branch of physico-radio-activity. In this experiment he had discovered the radio-active power of uranium. His subsequent experiments, which developed and completed this discovery, were published on March 2 and March 23, and he continued these investigations, which are described at length and lucidly in his work, *Recherches sur une Propriété nouvelle de la Matière* (1903). In recognition of the great importance of his discovery, the Royal Society awarded him the Rumford medal in 1900. He also received—with the Curies—the Nobel prize in 1903, and in 1907 the Helmholtz medal from the Berlin academy, and the Burnard medal from the National Academy of Sciences. He was president of the Société Française de Physique in 1907; in 1907 was elected vice-president of the French Academy, and in June, 1908, was chosen perpetual secretary of the Academy, in the place of Albert Auguste de Lapparent (q. v.). Consult the

obituary sketch in *Nature* (Sept. 3, 1908, p. 414 sqq.) and Burke, "Some Scientific Centres" (*id.*, Dec. 22, 1905, vol. LXXI, p. 177), which gives an account of the laboratory of the Musée d'Histoire Naturelle, and describes the apparatus used by Becquerel.

BEER. See LIQUOR, FERMENTED and DISTILLED.

BEET SUGAR. See SUGAR.

BEEVOR, CHARLES EDWARD. An English physician, died on Dec. 5, 1908. He was born in London in 1854, was educated at the University College there, and became a practising physician in 1881. He became a Fellow of the Royal College of Physicians in 1888, Croonian lecturer in that institution in 1903, Lettsomian lecturer to the Medical Society of London in 1907, and president of the Neurological Society in 1907. Shortly before his death he published in the *Philosophical Transactions* of the Royal Society an elaborate consideration of the arterial system of the brain, with fine color-photograph illustrations. In his Lettsomian lectures he discussed the diagnosis and localization of inter-cranial tumors. At the time of his death he was making a careful investigation of the action of paralyzed muscles. Dr. Beevor was especially invited to address the meeting of the American Medical Association in the summer of 1908.

BELGIUM. A country of western Europe. Area, 11,373 square miles. Population (1900), 6,693,548; on Dec. 31, 1907, it was estimated at 7,317,561. In 1900 French was the exclusive language of 2,574,805 people, Flemish of 2,822,005, and German of 28,314; while 801,587 spoke French and Flemish, 66,447 French and German, 7,238 Flemish and German, and 42,889 all three languages. In 1906 there were 58,388 marriages, 194,775 births, 127,388 deaths, and 8,504 still-births. The excess of births was thus 67,387, against 69,094 in 1905. Immigrants in 1906 numbered 37,382; emigrants, 32,858. The largest cities, with their populations as estimated on Dec. 31, 1907, are: Brussels, the capital, 198,449, exclusive of suburbs; Antwerp, 310,903; Liege, 173,939; Ghent, 164,117; Malines, 59,107; Bruges, 53,781; Verviers, 48,756; Borgerhout, 46,441; Ostend, 42,419; Louvain, 42,219; Seraing, 41,208. The following are the larger suburbs of Brussels: Schaerbeek, 75,153; Ixelles, 73,064; Mollenbeck, 67,094; St. Gilles, 61,748; Anderlecht, 60,318.

EDUCATION. Illiteracy is gradually decreasing, but in 1906 the percentage of recruits who could neither read nor write was still 9.80 per cent. of the total number, against 10.19 in 1905. At the end of 1905 there were 2,771 public infant schools, with 258,149 pupils; 7,144 primary schools, with 869,811 pupils; 4,077 adult schools, with 201,061 pupils; 58 normal schools, with 5,098 students; 88 male and 40 female middle-class schools, with 17,655 and 7,554 students respectively; and 35 royal colleges, with 7,673 students. Besides these public schools there are also many infant, primary and adult schools, about 80 colleges, 65 middle-class schools for boys and 150 institutions for girls—mostly controlled by the church. For higher education there are the State universities of Ghent and Liege, the free university of Brussels, and the church

university of Louvain, with about 6,000 students, besides 6 commercial high schools, 83 schools of design, royal and other schools of music, and the Royal Academy of Fine Arts at Antwerp, with over 1,000 students. Technical education in all its branches has reached a high degree of development.

AGRICULTURE. The area and production of the principal crops in 1905 were as follows, in hectares (1 hectare=2.47 acres) and metric tons (2,204 lbs. each): Wheat, 162,892 and 337,497; winter barley, 33,978 and 89,713; oats, 237,337 and 490,399; rye, 266,982 and 542,290; potatoes, 745,994 and 1,555,612; sugar beets, 64,175 and 2,101,334; other beets, 58,123 and 3,522,411; hops, 2,575 and 5,172. The wheat production in 1906 was 12,964,000 bushels, and in 1907, 12,000,000 bushels; of oats in 1906, 45,228,000 bushels, and in 1907, 45,000,000 bushels. The production of sugar beets in 1907-8 amounted to 1,620,000 tons; in 1908-9, 1,768,000 tons. The production of tobacco in 1906 was 20,927,359 pounds; in 1907, 19,476,206 pounds. At the end of 1905 there were 245,212 horses, 1,788,328 horned cattle, and 1,046,519 hogs. The average annual value of forest products is about 21,650,000 francs.

MIXING. The coal production of 122 mines in operation in 1906 amounted to 23,569,860 tons, against 21,775,280 tons in 1905. The number of coal miners in 1906 was 139,394, against 134,747 in 1905. There were in 1906 48 plants engaged in making briquettes, the output of which was 1,861,390 tons. The production of coke in 1906 was 2,414,490 tons. The iron ore production in 1906 was about 197,000 tons; pig iron in 1906, 1,431,460 tons, and in 1907, 1,327,940 tons, the bulk of the iron ore coming from Luxemburg. The output of spelter in 1907 was 154,000 tons. Quarrying employs over 37,000 men; its annual output exceeding \$12,000,000 worth of limestone, blue-stone, freestone, paving stone, phosphate of lime, clay, chalk and kaolin.

MANUFACTURES. The cotton industry employed in 1908 1,162,041 spindles, consuming during the year ending Aug. 31, 1908, 212,390 bales of cotton (116,877 American, 93,944 East Indian). Cotton weaving by machinery was carried on in 1907 in 61 establishments, employing 7921 workers, besides 2800 engaged in domestic weaving of cotton fabrics. Fabrics of pure wool or wool mixed with cotton were manufactured in 112 establishments, employing 8448 workers. The number of persons employed in weaving linen by machinery was 17,600. Out of a total of 45,500 lace makers in Belgium, West Flanders has 25,500, and East Flanders, 18,200. The industry is carried on at home, almost always by women in the villages, working to order and by contract, and paid by the piece. The contractors are located in Ghent, Bruges, and especially Brussels. They distribute their orders through middlemen, who frequently grow rich, while the lace makers receive barely sufficient wages to keep soul and body together. The industry is declining owing to competition of mechanical imitations, especially those of Venice, Chantilly, and Valenciennes, and to defective commercial organization. The carpet industry has almost completely disappeared from the Brussels district, the so-called Brussels carpets being now manufactured in Eng-

land and supplied to the Belgian market at prices much lower than those for which the same carpets can be produced in Belgium. The English are enabled to do this by using modern machinery and producing on a large scale. The Antwerp diamond industry employs between 4,500 and 5,000 men in 40 establishments. The tobacco industry employs about 9,800 workers in 616 factories. The raw sugar production in 1907-8 amounted to 238,200 tons, and was estimated at 258,100 tons for 1908-9. In 1908 there were 39 plants manufacturing electrical machinery, employing 5,9000 workers.

FOREIGN COMMERCE. The imports and exports (special trade) in 1907 amounted to 3,773,623,000 and 2,848,125,000 francs (1 franc=19.3 cents) respectively, against 3,454,017 and 2,793,840,000 in 1906. The transit trade in 1907 amounted to 2,343,016,000 francs, against 2,268,892,000 in 1906. The principal articles of import (special trade) in 1907 were as follows, in millions of francs: Cereals and flour, 565.8; wool, 220.6; timber, 159.4; resins and bitumens, including petroleum, 149.4; flax, 145.4; oleaginous seeds, 140.8; hides and skins, 122.1; iron and steel, 107.2; coffee, 109.4; coal, 96.5; diamonds in the rough, 92.6; chemical products, 90.8; machinery and vehicles, 90.6; cotton, 84.0; rubber, 75.4; dyes and colors, 70.0; living animals, 57.4; drugs, 49.7. The principal exports in 1907 were in millions of francs: Machines and vehicles, 260.6; iron and steel and manufactures thereof, 235.8; cereals and flour, 166.4; hides and skins, 110.6; flax, 106.7; wool, 102.7; cut diamonds, 94.8; linen yarn, 93.2; coal, 86.4; zinc, 84.8; glassware, 84.5; oleaginous seeds, 81.7; cotton tissues, 59.4; wool yarn, 56.7; chemicals, 52.9; sugar, 45.6; stones, 45.6; dyes and colors, 45.3; resins, etc., 45.3; manures, 42.2. The trade with the principal countries of origin and destination in 1907 was as follows, in millions of francs:

From and to	Imports	Exports
France	652.0	530.5
Germany, including Luxemburg	460.2	701.3
Netherlands	486.0	381.4
Russia	210.8	38.5
Rumania	206.4	21.0
Italy	46.2	99.1
Spain	60.8	31.1
United States	318.3	80.4
Brazil	80.7	33.7
Argentina	243.1	72.5
Chile.....	48.3	37.2
Congo Free State	58.7	18.5
British India	176.3	28.8
Australia	113.8	15.4

COMMUNICATIONS. In 1907 the ports of Belgium were entered by 10,306 ships of 13,465,447 tons, and cleared by 10,325 ships of 13,493,769 tons. The work of improving the canal from Ghent to Terneuzen, Holland, was progressing in 1908, and was expected to be completed about the beginning of 1909. The canal will permit the entrance of large Atlantic cargo boats to Ghent. Its length on Belgian territory is 10½ miles, and on Dutch territory 9½ miles. On Jan. 1, 1908, the merchant marine consisted of 77 steamers of 115,

852 tons, and three sailing vessels of 1,455 tons. Fishing boats numbered 419, of 8,033 tons. The length of railway at the end of 1907 was 2,879 miles, over 2,500 miles being worked by the State; of telegraph lines, 4,341 miles.

BANKS. The National Bank is the only bank of issue. On Dec. 12, 1907, its cash on hand amounted to 132,071,000 francs, and its note circulation, 735,989,000 francs. The State savings banks had at the end of 1905 2,311,845 deposits, aggregating 785,704,576 francs.

BUSINESS CONDITIONS IN 1908. The first nine months of 1908 showed a decline in imports, as compared with the same months in 1907, of about seven per cent., and in exports, three per cent. The export of Belgium coal declined from 3,730,900 tons in 1906 to 3,470,382 tons, and there was a corresponding decline in the export of coke and briquettes. The diamond industry of Antwerp suffered acutely from the falling off in orders from the United States, and nearly one-half the cutters were thrown out of work.

FINANCE. The revenue and expenditure in 1906 were 675,688,000 and 772,366,000 francs respectively, there being a deficit of 96,678,000 francs, against a surplus of 79,886,000 francs in 1905. The budget for 1908 estimated the revenue at 621,404,924 and the expenditure at 621,185,765 francs. The principal estimates of revenue were: Land tax, 28,300,000 francs; personal taxes, 24,440,000; customs, 53,111,250; excise, 80,603,750; registration tax, 36,895,000; succession tax, 25,000,000; railways, posts, and telegraphs, 316,520,300. The principal estimates of expenditure were: Public debt, 174,273,094; justice, 29,641,500; public instruction, 33,787,535; railways, posts, and telegraphs, 224,971,314; army, 57,116,974; gendarmerie, 21,277,665. The public debt stood on Jan. 1, 1908, at 3,364,611,550 francs.

ARMY. The neutrality of the country being guaranteed by several of the great powers, the army does not occupy the important place which it holds in most other countries. Recruitment is by voluntary enlistment for a period of thirteen years, eight in the active army and five in the reserve, but resort to conscription is authorized in case of necessity. However, there was a strong demand for military reform and army reorganization in 1908, and it was pointed out that the effective strength had been decreasing steadily for the five years previous so that there were only about 36,000 men actually in the ranks in November, 1908. The gendarmerie consisted of 26 officers and 2,125 men. The peace strength of the civil guard was 2,292 officers and 44,194 men. The war strength of the army is 2,513 officers and 97,316 men; of the civil guard, 157,537 officers and men. There is no navy.

HISTORY.

THE CONGO QUESTION. The dominant issue in the Belgian political record of 1908 was the Congo question. For several years past this question has drawn public attention by the scandals connected with King Leopold's administration of the Free State. (See Congo, paragraphs on *History*.) In 1908 plans for annexation were finally carried out and the treaty of cession whereby the King transferred the

Congo to the Belgian government was signed in August.

THE ANNEXATION MOVEMENT DOWN TO 1908. In late years the opinion had gradually strengthened that the annexation of the Congo by the Belgian government was inevitable. The right to take over the Free State had been definitely granted to the government by King Leopold in 1889, and this right was reaffirmed by the Belgian Parliament in 1901. Annexation was desired by an increasing party in Belgium, not only for reasons connected with international policy, but also on account of the pressure exerted from without in consequence of the scandals of the Congo administration. (See Congo.) Great Britain had constituted herself the champion of the natives, and had urged on the Belgian government measures of reform. In Great Britain the annexation was favored as the most practicable solution of the problem. Had it been a question of annexation pure and simple, that is, without any conditions, it would have been accomplished years before. But the King was unwilling to submit his royal African domain to the constitutional system of Belgium. When annexation was proposed, its conditions were such as would give the future administration a strictly absolutist character, and would retain the feature of royal control. According to the project at first discussed, the King would have concentrated in his hands both the legislative and the executive power; he would have controlled the budget and the Chamber of Deputies would have had no right to interpellate the ministers. In this form the treaty of cession was signed on Nov. 28, 1907, between the plenipotentiaries of the Belgian and the Congo governments, and was published on Dec. 6. Meanwhile, on Dec. 3, it had been sent to the Colonial Commission for examination. The matter of chief importance was the disposal of the Crown Domain, which had been marked off from the rest of the Congo some years before and had become the special property of the King. This had long been viewed with jealousy by many public men as a menace to constitutional government, in that it permitted the King to act without Parliament, and if occasion arose even against it. It was complained that it had led to interference in the internal affairs of Belgium, to the subsidizing of the press, the purchase of large properties and the conduct of expensive and wasteful "sumptuary" works which Parliament would not have sanctioned. Thus the works undertaken on the royal property at Ostend and at Laeken were paid for out of the revenues of the Crown Domain. The commission to which the instrument was referred was not chosen by the Chamber of Deputies, but by the President of the Chamber, and the majority was favorable to the government's designs.

THE ANNEXATION MOVEMENT IN 1908. On Dec. 31, 1907, the Premier, M. de Trooz died, and on Jan. 8, M. Schollaert, the President of the Chamber, succeeded. He declared that the time for decision of the question had arrived. Negotiations between the government and the King looking to the abolition of the Crown Domain took place in February. On the King's side a more conciliatory spirit was shown and a number of amendments were offered, chiefly, it is said, owing to the repre-

sentations of Great Britain and the signs of an aroused British feeling on behalf of reform. These amendments were embodied in the Additional Act of March 5, 1908, which suppressed the Crown Domain subject to certain conditions: Belgium was to carry out the sumptuary works begun or projected by the Congo Crown Domain in the royal properties at Ostend, Laeken and elsewhere; for which the special fund of 45,000,000 francs was to be created. A further sum of 50,000,000 francs, payable in fifteen annuities, was to be placed at the disposal of the King or his successor, "in token of gratitude for his great sacrifices on behalf of the Congo," and was to be used on public works in the Congo, the sanitation of the colony, the improvement of the negro, etc. The Belgian government assumed all the obligations contracted by the Crown Domain including payments of a certain annuity to Prince Albert, the heir presumptive, until he came to the throne, and to Princess Clementine till her marriage; also pensions to certain officials of the Domain, to missionaries, etc., and for the maintenance of the colonial collections at Stuyvenberg and the tropical greenhouses at Laeken. The government was bound to regard the rights granted by the Domain to the various concessionary companies. The fund of 50,000,000 francs must be made good from the colonial budget, out of which must be paid during a period of fifteen years an annuity amounting to a little more than 3,000,000 francs. "This will be dispensed by the King in the interests of the colony." At first this expenditure was not subject to ministerial countersign, but later the government agreed that ministerial approval was necessary, affirming, however, the principle that the King's initiative should be recognized, that is, that he should propose the various means of employing the money to the ministry instead of the ministry submitting its projects to the signature of the King. The debate began on April 15 and continued to July 16 when Parliament took up the consideration of the Colonial Law, which had also been submitted to the commission for examination and which provided the basis for the new administration. The ministry declared during the discussion of the treaty that all obligations resulting from conventions with foreign powers and from the Treaty of Berlin would be scrupulously fulfilled.

Despite the severe criticism of the measures, it soon appeared that Parliament on the whole favored them. The ministry were on the side of the King, and the majority did not wish to risk a ministerial crisis. The King's influence on the Catholic Right was increasingly powerful. The Left, to be sure, were opposed not only to the terms of the annexation but to the entire colonial policy; but there was dissension among both the Socialists and the Progressists. The various elements in the Opposition, however, agreed in general that the present terms of annexation were not only an infraction of the constitution but would impose a heavy charge on the finances, for in addition to the millions granted to the King and royal family, the Congo had a debt of 100,000,000 francs. In financial and high commercial circles the new arrangement was favored. The ministry wished to carry their policy through as soon as possible, in order

to dispose of it before the approaching elections, and because the British demands were pressing. Nevertheless, when the elections occurred the question was still pending.

The Colonial Law, which dated from the ministry of De Smet De Naeyer, had at first given the crown absolute power, making the King law maker and executive alike, giving him power to adjust the budget by royal decree and to nominate his own colonial council. As amended by the government, however, while the King retained legislative power, it was confined to such points only as had not been determined by laws passed by the Belgian Parliament; and the budget was to be voted by the Parliament. It was further provided that decrees authorizing loans chargeable to, or guaranteed by, the Colony, and work to be paid for out of extraordinary resources, should be issued only on the initiative of the ministers in council. No act of the King enjoys validity unless countersigned by the colonial minister, who thereby makes himself responsible. The régime set up for the colony comprises a Colonial Council composed of the Colonial Minister as president and ten members who must be drawn from outside of Parliament. Of these, six are appointed by the King, two by the Senate, and two by the Chamber. A permanent commission of seven members is charged with the protection of the native interests and the furtherance of their material and moral welfare. Its head is the Belgian procureur-général. The other members are appointed by the King from among the residents of the Colony. The commission must meet at least once a year and submit proposals for native legislation to Parliament. Its report must be made public.

The administrative head of the colony is the Governor-General. He names the public prosecutors. Magistrates are appointed and removed by the King, but dismissal can follow only on the demand of the procureur-général. The administrative authorities cannot interfere with the action of the courts, but the King may, in times of emergency, proclaim military rule within a specified district. Liberty of conscience and religious toleration are guaranteed to the natives but the Governor-General shall encourage the abandonment of polygamy, the spread of individual liberty and the development of private property. Belgians and foreigners are equal before the law.

THE ELECTIONS. On May 24, 1908, the elections for the Senate and Chamber required by the biennial retirement of half the members took place. They resulted for the Chamber in a gain of five by the Socialists, the loss of three to the Liberals, and of two to the government. The Clericals would have suffered a more severe defeat had it not been for the system of plural voting. The Chamber as thus constituted comprises 87 Catholics (Clericals), 43 Liberals, one Christian Democrat, and 35 Socialists. In the Senate the Catholics gained two and the Socialists three, while the Liberals lost five. This left in the Senate 63 Catholics, 47 members of the Opposition, and Prince Albert. The government had hoped that its majority, which had been diminished in the preceding election, would be increased by replacing with ministerial candidates several members of the Opposition whose previous election had been by

narrow majorities. In this they were disappointed, and actually lost three new seats, gaining only one. The actual ministerial majority was now only eight, and the election figures showed that the majority of the voters were against them. A significant feature of the election was the Socialist gains, which were interpreted by opponents of annexation as indicating popular hostility toward the measure, because the Socialists were more solidly against it than the Liberals.

BRITISH INTERVENTION. One reason why the King and his advisers had changed their earlier programme and taken the initiative in offering amendments to the treaty and the Colonial Law, was found in the growth of a hostile public opinion in Great Britain, and the remonstrances addressed to the Belgian government by the British Foreign Minister, Sir Edward Grey. In February, in the course of a debate in the House of Commons, Sir Edward Grey had said: "The present existing authority [referring to the Congo] is perfectly hopeless. * * * If you review the history of the hopes and aspirations with which consent was given to the foundation of the Free State, you cannot but come to the conclusion that the state has morally forfeited the right to international recognition." He said that in taking possession of the Congo the Belgian government must completely change the administration; and that while Great Britain had no wish to interfere in the negotiations between the Belgian government and the crown and would await their result, she would nevertheless have recourse to independent action and avail herself of her rights under the Berlin Conference, if after a reasonable interval no practical benefits were assured. He declared that "It must be a condition precedent to any transfer of the Congo to another authority, that that authority shall take it over on terms which will place it in a position to give assurances, and to guarantee that these assurances shall be carried out and the treaty obligations of the Congo shall be fulfilled." He referred to the publication of the United States Consul General's report on Congo conditions, and welcomed the coöperation of the United States.

The Belgian government declared that remarks of this kind embarrassed them in settling the question, as they tended to arouse the feelings of the Belgian people. It assured the British government that under the new arrangement the government would assume the responsibility for all obligations imposed by the Act of Berlin. In his reply on March 27, Sir Edward Grey declared that the labor tax system should be changed, as it practically introduced slavery and was in violation of the Berlin Act; that the system should cease to be obligatory; that the currency system should be introduced; that a far greater area of land should be allowed to the natives, and that British merchants and missionaries should be free to acquire parcels of land in any part of the state. On April 25, the Belgian government declared that it would facilitate the acquisition of land, insure the fair treatment of missionaries, and endeavor to improve the condition of the natives, but that the total abolition of the system could not be promised at a definite date. A correspondence was carried on between the

British and Belgian Foreign Offices, which was published by the respective governments in their official volumes.

The Congo Reform Association addressed a communication to Sir Edward Grey, expressing dissatisfaction with the proposed basis of annexation. Documents containing the reports of British consuls in regard to the affairs of the Free State were submitted to the British Parliament. In Belgium great resentment was shown against the charges of the consuls and of the Reform Association. Many of the statements were declared to be erroneous.

The attitude manifested by the United States government toward the question was the same as that of the British, but its course was less vigorous, owing to its less secure legal basis for interference. Secretary Root had at first assumed that the United States, not being a signer of the Berlin Act, had no right to interfere, but afterwards decided that such rights existed by virtue of the Brussels Act, guaranteeing the protection and development of native interests, and in April, in a communication to the Belgian government, declared that "The present situation is not that which was contemplated or foreseen when the Free State was called to life by the Powers." The Belgian government replied on April 24 and July 12 to the American and British communications, saying that while the concessions could not be abolished, important measures of reform would be applied. It declared that King Leopold's decree of June, 1906, gave the natives three times as much land as they now possessed, and that this decree would be enforced. The Belgian government throughout was profuse in general assurances of its intention to carry out reforms, but the nature of the measures before the Belgian Parliament did not satisfy the advocates of reform.

Two points, it must be noted, were especially emphasized in the British criticism above mentioned. In the first place it was said that the administration had not respected the rights of the natives. For years the forced system of labor which constrained the negroes to excessive service had been denounced by missionaries and travelers. In demanding that the system should be abolished, however, the British government conceded that the abolition should be gradual. In the second place the British notes pointed to the violations of the rule as to liberty of trade which was prescribed in the Congo under the Act of Berlin. They declared that it was only by virtue of an absolute commercial monopoly that the Congo administration could have derived its large profits. The principle invoked by the Congo government that vacant lands belonged to the state was not contested, but its application was denounced. For since landed property in the European sense did not exist in the Congo, the state had regarded as unoccupied land nearly the whole territory without regard to the needs of the natives. Moreover it had tried and condemned as robbers all who tilled the soil or hunted game on this land, even where no agent of the state had entered into possession. In thus keeping for itself or for concessionary companies everything that could properly be made the object of trade the administration had violated directly the rule of the Act of Berlin forbidding

commercial monopolies. The British government therefore desired the adoption of measures which, by giving the natives a right to cultivate an adequate area of land, by introducing a currency, and by the gradual suppression of forced labor, would make it possible for them to acquire the material for trade; also that the Belgian Parliament's control over the Congo should be real and effective. Such were the main lines followed in the diplomatic correspondences above mentioned during 1908. The negotiations were not concluded at the close of the year, the British government having reserved to itself the right to withhold its consent to the transfer of the Congo unless it were accompanied by satisfactory assurances that the reforms would be carried out.

ANNEXATION VOTED. The debate was resumed in the new Parliament, but it was soon evident that the measures as above outlined would be carried in spite of the criticism which they had encountered. The prevailing view appeared to be that something should be conceded to the King, who after all had spent his money freely and shown great energy; and that it was better to risk a few millions which might be expended in a manner that would not be approved, than to lose the chance of settling the question. On the other hand there were loud protests against the royal squandering and the increased burden on the finances that the conditions of annexation would impose. In the Chamber the treaty of annexation was carried on Aug. 21 by 83 to 54, nine members not voting.

The additional Act which contained the amendments suppressing the Crown Domain, etc., was carried by 83 to 55, nine members not voting, and the Colonial Law by 90 to 48, seven members not voting. The measures were debated in the Senate on Aug. 27, and the Treaty of Annexation was carried by 63 to 24, and the Colonial Law by 66 to 22. A strong element both in and out of Parliament opposed the measures, which, in spite of the modifications above mentioned contained many points that seemed to the opposition very objectionable. In the first place it was argued that the amendments which the government had accepted in the Colonial Law did not go to the root of the matter. They left to the King nearly all the powers that the first project had given him. For although the legislative power was restored to the Parliament its exercise was delegated to the King, who might by decrees determine any matters that were not already fixed by law. Another object of criticism was the recognition of the King's personal initiative in the expenditure of the 50,000,000 francs which were placed to his account. This was characterized as a dangerous innovation in a constitutional monarchy. As to the financial burden, it was complained that although by the Colonial Law the colony's debt would remain at the charge of the colony, the colonial budget was unlikely to balance, and heavy subsidies would be required. Moreover the principal resources of the Congo came from the exploitation of its domains, and if the monopoly which the previous administration had enjoyed were abolished and the forced labor ceased, these resources would considerably diminish. Finally there was the matter of the concessionary companies, some

of which had been formed but a short time before—arousing the suspicion that they had been made in order to take advantage of the annexation.

The status of these concessionary companies was one of the subjects of the negotiations between Great Britain and Belgium, the former having expressed the fear that the concessionaries, who had received very extensive powers, including, sometimes, the right to enforce the labor of the natives, would oppose the granting to the negroes of the more extensive rights over the land and its products which were essential to their improvement. The Belgian government replied that these concessions were given on the understanding that the rights of the natives would be respected. But this declaration was criticised as ambiguous, in that it did not make clear whether the rights here referred to were those which had been recognized at the time of the concession or the more extended rights which had been recently promised.

Patriotic Belgian opinion was inclined to resent the continuance of criticism from abroad as implying a lack of confidence in the willingness of the Belgian nation to deal fairly by its new colony. The transition from the Leopoldian régime to a better colonial system could not be effected without prolonged study and experimentation. An individual owner and ruler, looking only to his own personal advantage, might tolerate a policy of exploitation. But a nation, permanently shouldered with the management of a large colonial domain, might be trusted to avoid the ultimately suicidal policy of oppression and extortion. The interests of Belgians being now coincident with the interests of the colony, it was the duty of foreign critics to suspend judgment while the process of reconstruction was under way.

OTHER POLITICAL QUESTIONS. In the spring session, besides the vote on the budget, Parliament passed among other measures laws modifying the commercial code in regard to maritime shipping, providing for the registry of vessels engaged in the river trade, simplifying the formalities of marriage, giving women the right to serve as witnesses in civil cases, and permitting judicial instructions to be given in Flemish at the Assize Court in Brabant. In the summer session the energies of Parliament were absorbed in the discussion of annexation, and no progress was made toward the settlement of certain questions which had long been before the public and in regard to which the opposition demanded reforms. These were the questions of military reform, obligatory instruction and electoral reform. In the matter of military recruiting, some demanded the abolition of the privilege of substitution, requiring that everyone who had drawn "a bad number" should serve in person. Others insisted on the suppression altogether of the system of drawing by lot. This demand for "personal service" was of some years standing. In order to facilitate it the government had some years before succeeded in carrying a law reducing slightly the period of service in time of peace, and, to offset this diminution of the effectives, promising the volunteers a considerable advance in pay. This measure had been criticised severely in military circles. In the course of the year it was generally admitted

that the results were unsuccessful, that in spite of the advantages offered to the volunteers the numbers were not maintained.

As to the school question, freedom of education in Belgium is guaranteed by the Constitution. The Catholics have held that the establishment of public schools which would compete with Catholic schools under private or congregational control is a violation of this liberty. They have contended that the same advantages and the same subsidies that are granted to such public schools should also be granted to their own institutions, but subsidies to the free schools are still somewhat inferior to those of the public schools, and the Clerical party insists on equality. This applies to the communes, for they are charged by the Belgian law with the organization of primary education. It has been proposed that the communes shall be required to grant to the free schools the same subsidies that they bestowed on the communal schools. It would bear heavily upon the large communities, and the additional expense would, it is said, necessitate a considerable reduction of the school establishments. It was criticised as a Clerical measure, designed to place the Clerical schools everywhere in the majority. Under a compulsory system, it would be greatly to the Clerical interest.

As to the electoral reform, the Belgian system of elections is at present very inconsistent. Although the principle of proportional representation applies to the legislative elections, the provincial elections are still decided by absolute majorities, and the communal elections proceed on a mixed system, in which proportional representation is admitted if no ticket receives an absolute majority. The reform proposed would apply to the communal elections, the system of proportional representation employed in the legislative and provincial elections. The Liberals and Socialists furthermore demanded the abandonment of a system of plural voting. As now constituted and as shown by the May elections, the Belgian Chamber does not represent the actual status of political opinion in the country.

BELMONT, OLIVER HAZARD PERRY. An American capitalist, died on June 10, 1908. He was born in New York City on November 12, 1858; and, after graduating at the United States Naval Academy, served for two years in the navy. He was for a time in business at Bremen, Germany, and then entered the banking firm of August Belmont and Company. In 1900 he was delegate to the Democratic National Convention and in the same year was elected representative to the Fifty-Seventh Congress. He published the *Verdict*, an illustrated political weekly favoring free silver, which had but a brief existence.

BENZOATE OF SODA. See **FOOD AND NUTRITION.**

BERI-BERI. See **TROPICAL MEDICINE.**

BERMUDAS. A group of about 300 islands, reefs, and rocks, of which about 20 are inhabited, situated northeast of Florida, and constituting a British colony. The largest islands are St. George, Bermuda, Somerset, and Ireland. Total area, 19 square miles. Population (1901), 17,535, of whom 6,383 were whites; in 1906 it was estimated at 19,588. The chief town is

Hamilton, on Bermuda, with 2,246 inhabitants in 1901. About one-third of the area is under cultivation. The products and exports are mainly sweet potatoes, onions, lily-bulbs, bananas, arrowroot, and some corn. Under the direction of the local Board of Agriculture, the lily-bulb industry is rapidly recovering from the effects of the exportation of hybrid bulbs for true stock. The 1907 exports of lily-bulbs was valued at \$46,777. Foods are imported mainly from the United States and Canada. The imports and exports in 1906 were valued at £398,176 and £121,295 respectively. In 1907 imports from Great Britain were valued at £111,831, and exports to Great Britain, £1,831. For the fiscal year 1907-8 the imports of the United States from Bermuda were valued at \$571,993, and exports to Great Britain, £1,831. For the \$957,066. Owing to late delivery and the immense output of Texas, there was no sale for Bermuda's 1908 crop of vegetables and onions. Both dealers and planters suffered disastrous losses, but up to September, 1908, there were no failures or suspensions. The revenue in 1907 was £67,538; the expenditure, £59,172; and the public debt on Dec. 31, £46,100. Bermuda is an important naval station. In 1907 the naval force numbered 1,130; the military force, 1,202. The Governor in 1908 was Gen. Walter Kitchener.

BERNSTORFF, JOHANN-HEINRICH, COUNT VON. A German diplomat, Ambassador from Germany to the United States, born at London, Eng., on November 14, 1862. He was educated at Dresden, and in 1881 joined the First Regiment of the Artillery Guards. In 1889 he became attaché to the German legation at Constantinople, and, subsequently, served as secretary of the legation at Belgrade, Dresden, St. Petersburg, and Munich. He was made counselor and first secretary to the German embassy in 1902. On November 7, 1908, he succeeded the late Baron von Sternburg as German Ambassador to the United States.

BETHUNE, THOMAS G. An American negro musical prodigy, better known as "Blind Tom," died on June 13, 1908. He was born on a plantation near Columbus, Ga., about 1850. His parents were slaves belonging to Gen. Thomas G. Bethune, after whom he was named. Although blind and half-witted from birth, he early displayed extraordinary imitative musical powers; he could play even the most complicated piano piece after hearing it once performed. He made his first public appearance in New York City in 1861, and afterwards gave concerts throughout the United States and Europe. His repertoire embraced upwards of 5,000 selections, including some of Liszt's most difficult transcriptions. Increasing idiocy finally compelled his retirement from concert life. He spent the last years of his life at Hoboken, N. J.

BIBLE SOCIETY, AMERICAN. A religious organization founded in 1816 for encouraging a wider circulation of the Holy Scriptures without note or comment. The issue of the year 1907-8 amounted to 1,895,941 volumes, Bibles, Testaments, and Gospels, or other single portions. The 92nd annual meeting was held at the Bible House, New York City, May 14, 1908. During its ninety-two years of existence the society has distributed 82,316,323 volumes of the Scriptures, including those in foreign tongues and in languages and dialects of several American Indian

tribes. The Society has received since its organization contributions amounting to \$32,938.-282.50. It issues an illustrated monthly, the *Bible Society Record*, besides thousands of leaflets annually. The President of the Society, Daniel Coit Gilman, LL.D., died Oct. 13, 1908, and his successor had not been chosen at the end of the year. Secretaries are Rev. John Fox, D.D., Rev. William I. Haven, Rev. Henry O. Dwight, LL.D.; Treasurer, William Foulke.

BICYCLING (as a sport). See CYCLING.

BIKELA, DIMITRIOS. A modern Greek poet, translator and historian, died in Athens, on July 21, 1908. He was born in Greece, in 1835. His translation of the plays of Shakespeare into Greek (1876-87) is notable. He was a prime mover in the modern revival of the Olympic games. Besides his translation of Shakespeare, the most notable of his works include: *Stichoi* (poems, 1862); *Loukis Laras* (a novel, 1879; Eng. trans. 1881); and *Greece, Byzantine and Modern* (1893).

BILLIARDS AND POOL. The first important contest in 1908 for the professional world's championship at 18.1 balk-line billiards took place at Philadelphia on Jan. 23, Jacob Schafer defeating the challenger, A. A. Cutler, by 500 points to 476. On Mar. 11, Schafer defeated W. F. Hoppe by 500 to 423. In May, 1908, however, Schafer forfeited the championship emblem to George Sutton, because of ill health. In the 18.2 balk-line contest at New York on January 27, George Sutton defeated Ora C. Morningstar, challenger, 500 to 309. On Mar. 27, W. F. Hoppe defeated Sutton 500 to 272, winning the championship, but the emblem was later returned to the donors.

The National Amateur championship at 14.2 balk-line was again won by Calvin Demarest, who, after being tied for first honors with H. A. Wright and C. F. Conklin, defeated Wright. Demarest made a run of 202 in this contest, which is the highest on record. The World's Amateur Championship at ball pool was won by Thomas Hueston, who defeated Jerome Keogh 600 to 584. This victory made Hueston the permanent possessor of the trophy.

BIOLOGICAL CHEMISTRY. See CHEMISTRY.

BIOLOGICAL STATIONS. At Wood's Hole, Mass. Professor C. O. Whitman, founder of the Marine Biological Laboratory, and Director since its founding, resigned, and Professor F. R. Lillie was appointed to the position. Professor G. A. Drew is Assistant Director. The Marine Biological Association of the West of Scotland considerably enlarged its station, and put again in commission its steam yacht *Mermoid*. The Director of the San Diego, California, Marine Biological Station reported that a new vessel, the *Alexander Agassiz*, had been added to the equipment of the station, and with this it was possible to do much more accurate and thorough work than was previously possible in the plankton investigation of the area comprising the continental shelf from Point Conception southward. At a considerably less initial and much less running expense, this boat was able to do even more efficiently than a larger one the special work desired. Dr. C. A. Kofoid, assistant director of the station, spent a portion of the year in Europe in a study of the work that was being done by the International

Council for the Investigation of the North European Seas, in the hope of being able to coordinate more thoroughly the work of the San Diego Station with what was being done abroad. The Marine Biological Station at Port Erin, Isle of Man, reported in January, 1908, a very successful year in 1907. Experiments on lobster culture were carried on, and considerable progress was made in the submarine exploration of the Irish Sea. The Marine Laboratory at Roscoff, which is under the control of the University of Paris, reported that it was able to offer to students from abroad opportunity for work in private rooms at an annual rental of 1500 francs. The station has an admirable equipment, comprising aquaria, museum, library, collecting apparatus and boats and a few living rooms for investigators who may find it necessary to live near their work. The director is Professor Delage. In connection with Armstrong College, Newcastle-on-Tyne, the Dove Marine Biological Laboratory was founded by Wilfred H. Hudleston in memory of his ancestor, Eleanor Dove. Mrs. Reid, widow of a former president of the Bermuda Natural History Society, gave \$2,500 to the society for the use of the biological station now under the direction of Professor Mark, of Harvard.

BIOLOGY. As indicated in the YEAR BOOK for 1907, the rediscovery of Mendel's law of heredity led to a renewed interest in the subject, so far that a new science, "Genetics," has arisen. A great deal of this work was carried on during 1908, with results in general confirmatory of those previously obtained, though it was recognized that the law was much more complex in its operation than was at first supposed, and some apparent contradictions were still to be understood. Attempts were made to show that sex is inherited in accordance with this law. Wilson (See ZOOLOGICAL SOCIETIES) believed that the explanations were not satisfactory and that the problem of sex determination is in some way connected with the composition and behavior of the chromosomes of the sex cells. It is possible that a greater quantity of chromatin material is uniformly present in the female than in the male body cell, and that the presence of a greater or less amount of chromatin in the fertilized egg cell determines that it shall develop into a female or a male respectively. Conklin, discussing the mechanism of heredity, declared that it was an error to speak of hereditary transmission as if characters were bequeathed by parents to their offspring. The offspring resembles its parent because both are differentiated, by similar processes, from primitively similar material, all really inherited characteristics being predetermined in the structure of the germinal protoplasm. There is a species plasm, or individual plasm, continuous from generation to generation, but there is no satisfactory evidence that this differs from the general protoplasm of the young germ cells. The differentiations which occur in the development of a young germ cell are essentially similar to those which go on in later historical differentiations of the body, and both must be recognized as due to interactions between cytoplasm and nucleus. In this interaction the nucleus determines the formation rather than the localization of the different substances. Observation and experiment seem to Conklin to show that both the nucleus and the cytoplasm

of the egg and the spermatozoön have to do with determining hereditary qualities, but that all the early differentiations of the developing egg are determined by the cytoplasm of the egg cell. The nuclei of egg and sperm determine only the characters of the differentiations of later stages of development.

The most important questions connected with the modern discussion of the theory of evolution are 1st—Are acquired characters inherited? 2nd—How far have species arisen by means of mutations? 3rd—How far have species arisen by means of natural selection acting on slight variations (fluctuations)? 4th—What other factors aside from natural selection must we assume are at work in the evolutionary processes? In discussions on the inheritance of acquired characters, it is usually stated that such an inheritance is possible in Protozoa, where reproduction is merely the division of the body into two smaller individuals. A distinction is made between the Protozoa and the Metazoa in this respect, it being assumed that in the latter the germ cells are too far removed from the somatic to respond directly to changes in these. Jennings has shown, however, that in *Paramoecium*, when a new character appeared (e.g. a prominent spine at one end of the body of the animal) it would be transmitted to only one of the descendants at the time of division. This would happen also in the next generation, so that no matter how numerous the progeny may become, only one will possess this new character. Evidently there can be no question of the *Paranæcium*, and when a new character appeared tozoa. Not always would the character be continued even by one individual, as by a process of regulation the animal might resume its normal form. From this and other experiments he concluded that in order to be transmitted the modification of the protozoan cell must be such as to cause it to behave differently in reproduction. In this respect the germ cell of the metazoan is strictly comparable to the protozoan cell. Any permanent modification of the race must depend on such a change of the germ cell of the metazoan, or the entire body of the protozoan, as to cause it to behave differently in reproduction.

Francis Darwin, as president of the British Association, in his presidential address argued for the inheritance of acquired characters in plants, and showed how in many cases permanent effects were produced by external stimulations. This points to a sort of "mneme" which is primarily responsible for hereditary changes in both plants and animals. He believes that changes in somatic cells are conveyed to all cells of the body, in animals by means of nerves, in plants by protoplasmic connections, thus impressing characters even upon the germ cells of the body. Macdougall, on the other hand, thinks that in plants where structural modifications follow changed environment, these modifications are only accidentally adaptive. "No case exists" he says, "in which it is proved beyond reasonable doubt that any fully and continuously inheritable change has been induced in a plant by conditions of cultivation, outside of those due to selection, hybridism, and mutation."

President Jordan, choosing his illustrations from among fishes, says that no species can become distinct from others without some sort of

a physical barrier between the two. His law of germinate species is: "Given any species, in any region, the nearest related species is not to be found in the same region, nor in a remote region, but in a neighboring district separated from the first by a barrier of some sort, or by a belt of country the breadth of which gives the effect of a barrier."

Cunningham, who attempted to show some years ago that cesondary sexual characters are not due to selection, but to the use made of organs during reproductive periods, the effects of this use being inherited, in 1908 extended this theory to explain the probable mode by which the external characters are able to affect the germ cells. Basing his theory on the known facts of internal secretions, he supposes that secretions, "hormones" set free from any organ, and formed by the activity of that organ, are carried by the blood to the developing gametes, and so modify them as to produce in the next generation a duplication of the modification impressed on the body of the parent. For example, stags, when fighting, produce modifications of the surface of the skull. The hypertrophy thus produced forms hormones which are carried as above stated by the blood, and a corresponding hypertrophy, leading in this case to a horn, appears in the offspring.

It will be apparent from the above, that in 1908 we were still far away from any agreement as to the factors of evolution. It seemed probable that this condition would persist until some one devises and carries through to completion some conclusive experiments. That the conditions surrounding the struggle for existence are not as severe as is usually claimed by the Darwinians, is indicated from observations by Kellicott, from a study of practically a whole natural group of toads. As many as 8.75 per cent of individuals had one or both feet crushed, one foot missing, etc. In spite of these considerable disadvantages, the individuals were perfectly able to exist. Plate published during the year the third edition of his "*Darwinischen Selektionsprinzips*," which was considered the most comprehensive survey of the whole field of post-Darwinian literature that we have. In it he took a definite stand in favor of the Lamarckian factor.

While in recent years there has been a tendency to interpret more and more of vital phenomena as dependent on chemical and physical phenomena, the doctrine of a vital force is beginning to reassert itself. Of its supporters Driesch is perhaps the best known. In his Gifford lectures he developed the idea of an "entelechy" or vital principle supervising the life processes of the organism, and most in evidence in cases of regeneration and regulation. Another vitalist is Schneider, whose *Versuch einer Begründung der Deszendenztheorie* appeared in 1908. He supposes a special vital substance which has the same relation to vital energy that the ether of the physicist has to radiant energy. This vital substance consists of "physical substances" residing in the structural units of the organism.

BIRD, FREDERICK MAYER. An American clergyman, editor, educator, and hymnologist, died on April 2, 1908. He was born in Philadelphia on June 28, 1808. He graduated at the University of Pennsylvania in 1857, at Union Theological Seminary in 1860, and was ordained

as a Lutheran Minister. He served as an army chaplain in the Civil War (1862-63), and then filled several pastorates until 1868. In that year he left the Lutheran church and was ordained deacon in the Episcopal ministry. In 1881-86 he filled the chair of psychology, Christian evidences, and rhetoric at Lehigh University. He was for five years (1893-98, editor of *Lippincott's Magazine*. As a hymnologist he was reckoned one of the leading authorities in the United States. Among numerous hymn books edited wholly or in part by him are: *Lutheran Ministerium Hymns* (1865; with Dr. B. M. Schumaker. rev. ed., 1868); *Charles Wesley Seen in his Finer and Less Familiar Poems* (1867); *The General Council's Church Book* (rev. 1868); *Songs of the Spirit* (1871; with Bishop Odenheimer). He also was editor of Presbyterian and Moravian hymnals. He wrote several encyclopædic articles on hymnology, and was himself the editor of *Chandler's Encyclopædia* (1898). In 1893 he published *The Story of Our Christianity*.

BIRD PROTECTION. See ORNITHOLOGY.

BIRTH RATE. See VITAL STATISTICS.

BISMARCK ARCHIPELAGO. A group of islands northeast of German New Guinea, to which it is attached administratively. Including the German Solomon Islands (q. v.), the area is estimated at 22,000 square miles, and the population at 250,000. In 1907 there were 310 foreign colored, mostly Chinese, and 360 whites (255 Germans). The total cultivated area in 1907 was 12,102 hectares. The chief products are copra, rubber, coffee, and kapok. The cotton production in 1907 was 2,491 pounds. In 1906 the imports amounted to 2,390,000 marks, and the exports, 1,513,000 marks (copra, 1,376,000).

BISON RESERVATION. See ZOOLOGY.

BLACKBURN, JOSEPH CLAY STYLES. An American politician, member of the Isthmian Canal Commission and ex-United States senator (Democrat) from Kentucky, born in Woodford County, Ky., on October 1, 1838. He graduated at Centre College, Danville, Ky., in 1857, and the following year was admitted to the bar, and began his law practice in Chicago. During the Civil War he served in the Confederate Army as aid-de-camp to Gen. William Preston until the winter of 1864, when he received an independent command in Mississippi. After the war he practised law in Versailles, Ky., and in 1870 was elected to the State legislature, of which he remained a member until 1875, when he was chosen on the Democratic ticket as representative to Congress. He was reelected to the Forty-fifth, Forty-sixth, Forty-seventh, and Forty-eighth Congresses and then was sent to the United States Senate, where he served continuously, with the exception of the period 1897-1901, until March 3, 1907. Gen. Blackburn was prominent in the councils of his party and in 1906 and 1907 he was accorded the honor of the chairmanship of the Democratic caucus in the Senate. On April 1, 1907, he became a member of the Isthmian Canal Commission by appointment of President Roosevelt. As a member of this commission Gen. Blackburn has charge of the Department of Civil Administration in the Canal Zone.

BLAYDES, FREDERICK HENRY MARVELLO. An English classical scholar, died on Sept. 8, 1908.

He was born in Hampton Court Green (near London) on Sept. 29, 1818, studied in St. Peter's School, at York, in 1830-36, and at Christ Church, Oxford, where he was awarded the Hertford scholarship in 1838, and second class honors, *Lit. Hum.* in 1840. In 1843-86 he was vicar of Harringworth, Northamptonshire. Blaydes is best known as the editor of *Aristophanes*, especially of the splendid Halle edition (12 vols. 1880-99) of the plays, fragments, and scholia,—a notable improvement on Dindorf's Oxford edition,—supplemented by his *Adversaria on the Fragments of the Comic Greek Poets*. It is no exaggeration to call him the foremost critic of Aristophanes in the nineteenth century. Blaydes edited, besides, *Sophocles* (1859-80), with English commentary, and the *Oresteia* of Aeschylus, 3 vols., with Latin notes.

BLIND TOM. See BETHUNE, THOMAS G.

BLOOD. THE PRECIPITIN TEST for the identification of human blood is of great importance in medico-legal practice when questions arise as to the identity of a given specimen of blood. The test depends upon the fact that a precipitate will be thrown down in a mixture containing human, as distinguished from animal, blood, on the addition of a specially prepared serum. The details of the test are as follow: A rabbit is injected several times, at intervals of a few days. There is formed in the animal's blood a substance which will produce a precipitate in diluted human blood serum. After a week the rabbit's blood is withdrawn and the serum separated. The specimen to be tested, if fresh, is diluted 100 times, but if dried, the material is soaked with distilled water and the filtered solution mixed with an equal volume of double normal salt solution. To this clear solution a few drops of the serum of the immune animal are added and the mixture allowed to stand. If human blood is present a precipitate will occur within a half hour. The precipitate is specific for human blood as distinguished from that of other animals except those of the ape. Similar serum can be prepared which will be specific for each species of animal. Ulenhuth reports a number of remarkable cases illustrating the value of the test. A man was accused of murder. He alleged that the blood stains on his clothing were due to the drippings from some meat. The precipitate test gave a positive reaction for human blood. A man had entered a claim for sick benefits, having been found in bed with the bedclothes soaked in blood. He claimed to have had a hemorrhage during the night, but the precipitate showed that the blood on the bedclothes was bovine, as he afterward confessed. He had emptied a bottle of ox blood on the bed. Kochel reports the case of a man who claimed, as the result of an accident, to be suffering from hemorrhage from the urinary tract. The precipitate test gave a positive reaction for pig's blood, and it developed that he was pouring pig's blood into his urine from a phial.

BLUMENTHAL, JACQUES (JACOB VON). A German-English pianist, composer, and teacher, died on May 18, 1908. He was born at Hamburg, in 1829; studied harmony, counterpoint, and composition under Grund, Bocklet, and Sechter at Vienna, and piano under Halévy and Herz, at Paris. In 1848 he went to London, where his brilliant playing won him instant recognition. He became a naturalized British subject,

and was appointed court pianist to Queen Victoria. The later years of his life were devoted to teaching and composition. He composed several piano pieces and a great number of songs, of these are: "My Queen"; "Requital"; "The one time exceedingly popular. The best known of these are: "My Queen"; "Requital"; "The Message"; and " 'Tis but a Little Faded Flower,"

BOISSIER, MARIE LOUIS GASTON. A French writer and educator, secretary of l'Académie Française after 1895, died on June 10, 1908. He was born at Nîmes on August 15, 1823, and was educated at l'École de Paris. He was professor of rhetoric at Angoulême (in 1847,) at Nîmes (in 1847), and at the Lycée Charlemagne, Paris, (in 1857). In 1861 he became professor of Latin oratory at the Collège de France, and four years later was made *maître de conférences* at l'École Normale. Subsequently he was professor of Latin literature at the Collège de France and a member of the superior council of public instruction. In 1878 he was elected to the French Academy, of which, in 1895, he was chosen permanent secretary. He was received into l'Académie des Inscriptions et Belles Lettres in 1886. His writings deal principally with Latin literature and antiquity and are remarkable for their simplicity, succinctness, and readableness. They include: *Le poète Attius*, (1857); *Etude Terentius Varron* (1861); *Recherches sur la manière dont furent recueillies et publiées les lettres de Cicéron* (1863); *Cicéron et ses amis*, (1865), his best work; *La religion romaine d'Auguste aux Antonins* (1874); *L'opposition sous les Césars* (1875); *Promenades archéologiques. Rome et Pompéi*, (1880), and *Nouvelles promenades archéologiques. Horace et Virgile* (1886); both well known works; *Madame de Sévigné* (1887); *La fin du paganisme* (1891); *Saint-Simon* (1894); *L'Afrique romaine* (1895); *Tacite* (1903 Eng. trans. 1906); *La conjuration de Catilina* (1906). Boissier also contributed to the *Revue de l'Instruction publique*, *Revue des Deux Mondes*, *Revue de Philologie*, and *Journal des Savants*.

BOLIVIA. The only inland republic of South America. Area, 473,560 square miles. Population (1906), estimated at 1,953,916. The principal cities, with their population according to the latest estimates, are: Sucre, the capital, 20,907; La Paz, 60,031; Cochabamba, 21,886; Oruro, 22,000; Potosi, 20,910; Santa Cruz, 18,335; Tarija, 6,980; Trinidad, 4,294.

PRODUCTION AND COMMERCE. Wheat, maize, barley, and potatoes are produced mainly for local consumption, but a small amount of maize and maize flour is exported. Agriculture is in a primitive condition. Small quantities of cacao, coffee, and quinine are exported to adjacent countries. India rubber, which grows wild in the primeval forests, alpaca wool, and chinchilla and vicuña skins constitute important exports. White and yellow cotton grow wild. The chief wealth of the country lies in its minerals—tin, copper, gold, and silver. Next to the Malay Peninsula, Bolivia is the foremost tin producer in the world. In 1907 the output of tin barilla, or concentrates, amounted to 27,677,781 kilograms (1 kilogram = 2.205 pounds), representing 16,608,669 kilograms of pure tin valued at 29,892,003 bolivianos (in July, 1908, the boliviano was worth about 39.3 cents, and in Oct. 1907, about 49.9 cents). Both the quan-

tity produced and its value were lower in 1907 than in the preceding year. Potosi is the most extensive silver mining region in the country, but is awaiting the construction of railways and the application of modern processes for its full development. The Huanchaca mines, near Uyuni, are equipped with modern machinery and are in full operation. The copper mines at Corocoro are very rich, but their development on a large scale has not yet been attempted. The total imports in 1906 and 1907 were valued at \$17,544,000 and \$15,159,000 respectively, and the total exports, \$20,133,000 and \$27,827,000. The principal exports in 1907 were: tin, \$11,957,000; rubber, \$3,537,000; silver, \$2,593,000; copper, \$1,025,000; bismuth, \$314,000. The trade is principally with Great Britain, Germany, France, Argentina, Peru, Chile, and the United States.

COMMUNICATIONS. In 1908 there were over 400 miles of railway, 2,300 miles of wagon roads, and over 2,900 miles of telegraph lines, of which the government owns over 1,800 miles. Navigation on Lake Titicaca and the rivers, of which 12,000 miles are navigable, is carried on in both government and private vessels. The railway lines between Viacha and Oruro, 127 miles long, were completed by the middle of 1908, resulting in through railway communication from Lake Titicaca to the town of Uyuni, 363 miles. It was constructed by the Messrs. Speyer and Co. and the National City Bank of New York, who were to start next the line from Uyuni to Tupiza, 125 miles. By agreement with Argentina, the latter country was to construct a railway from Quiaca to Tupiza and thence to Potosi (see ARGENTINA). The contract for the Arica-La Paz line, which was being constructed in accordance with the treaty of October, 1904, with Chile, was taken by the Deutsche Bank of Berlin in Nov., 1907.

GOVERNMENT. For the president, see paragraph *HISTORY* below. The Congress is composed of a Chamber of Senators, and a Chamber of Deputies. The first has a membership of 16, and the second of 75.

FINANCE. The national revenues for 1907 were estimated at 13,583,333 bolivianos, and the expenditures at 14,549,793 bolivianos. For 1908 the budget estimates were 16,025,379 and 18,618,515 bolivianos respectively, showing a deficit of 2,593,136 bolivianos. There is no external national debt. The internal debt stood in 1907 at 4,346,529 bolivianos, besides treasury notes of 2,500,000 bolivianos bearing 8 per cent. interest.

ARMY. Military service is compulsory for all males between twenty and fifty years of age, and this law, hitherto very leniently enforced, was given much more attention in 1908 than had been customary. The peace strength of the army was about 2,500 men at the beginning of 1908 and this was increased by a regiment of cavalry and one of field artillery during the year. The war strength is about 177,800 men. The infantry was armed with a Mauser rifle and the field artillery with modern rapid-fire Creusot guns.

HISTORY. On May 4, 1908, Señor Fernando E. Guachalla, formerly minister at Washington and member of the Pan-American and Hague Conferences, was elected President by a majority of 20,934. He died, however, before his inauguration, and the outgoing president, Señor Montes continued in office. On Jan. 31,

1908, Bolivia signed a convention with Peru for the regulation of the free transit of merchandise through such ports as the Peruvian government should designate for Bolivian commerce, in accordance with the Treaty of Commerce and Customs of Nov. 27, 1905. It was to be in force until July 1, 1911, at which time it might be continued indefinitely unless either of the Governments should denounce it, in which case it was to terminate after one year's notice. The boundary question with Peru was under discussion during the summer, but having been submitted to the arbitration of the President of Argentina, gave promise of satisfactory settlement. Relations with Peru, with whom Bolivia already had a treaty of commerce, continued in all other respects to be most friendly, and Bolivian relations with other states were cordial. President Montes read his message at the opening of the Bolivian Congress on Aug. 6. He referred to the friendliness between Bolivia and all other countries. He announced that a Treaty of Amity and Commerce with Germany would be submitted to Congress, that a commercial treaty with Great Britain relating to the rights of the subjects of the two countries was being negotiated, and that delimitation of the frontier of Brazil by the Survey Commission was progressing satisfactorily, as well as the adjustment of the boundary question with Peru. On Dec. 31 there was promulgated an act of Congress by which the gold standard was adopted for Bolivia and a system of coinage and currency was decided on. English and Peruvian pounds of a value of 12.50 bolivianos each, and half pounds valued at 6.25 bolivianos, will circulate in Bolivia, and will be unlimited legal tender in all transactions. In addition, the President was to have coined and issued subsidiary coinage of silver and nickel to the value of 4,000,000 bolivianos in the case of the former and 1,000,000 bolivianos for the nicked coinage. The silver coinage was to be legal tender up to 12.50 bolivianos and the nickel coinage up to 1 boliviano. It was provided that the government should exchange English pounds for this subsidiary coinage at the rate provided for in the law of Nov. 30, 1904, and the silver coin in circulation was to be taken in exchange at the same rate.

BOLL WEEVIL. See COTTON.

BONNER HUGH. Commissioner and former chief of the New York Fire Department, died on March 13, 1908. He was born in Ireland, on June 14, 1839, and was educated in the public schools of New York. He entered the fire department of that city in 1860, and served as a volunteer until 1865 when the paid department was organized. He operated the first self-propelling fire engine and chemical engine, and the first water tower used in the department; became battalion chief in 1872, second assistant chief in 1883, first assistant chief in 1884, and was chief from 1889 until 1899, when he resigned. Bonner was selected to organize the Havana and Manila fire departments soon after the American occupation, and on the resignation of Commissioner Lantry he was appointed Fire Commissioner by Mayor McClellan, which office he held at the time of his death. In this capacity he was beginning to improve the discipline and effect reforms in the department. Bonner devised many improvements in fire fight-

ing appliances, and was an intelligent and persistent student of his subject.

BOOTS AND SHOES. This industry shared in the general depression of 1908 and the production was diminished correspondingly. The shoe shipments from Boston, which are estimated at 75 per cent. of the output of New England and 50 per cent. of the total production of the United States, and are regarded as the statistical index of the industry, during 1908 were 3,698,818 cases, as compared with 4,730,636 cases in 1907 and 5,082,578 in 1906, which was the record of maximum production in any single year. Labor troubles played some part in the activities of the year, particularly in Brockton, and several plants moved to country places, while others were contemplating such a step. So seriously did this threaten that towards the end of 1908 a citizens committee was established, and while its labors were not completed at the end of the year, some progress had been made towards securing a better understanding between employers and operatives. This tendency towards dispersion, if carried out, may have an important effect on the shoe business, as it is one that can be carried on in small factories almost as economically as in immense plants, and if these are isolated and located in rural districts were organized labor cannot flourish the effects may be quite interesting. Brockton, while being a centre of trades union activity, has so many shoe shops that the best workers in the country have been attracted there, so that it has been advantageous to locate shoe factories there in order to enjoy the highly skilled and efficient labor thus brought together. Shoe manufacturers naturally were interested in tariff discussions and many of them were in favor of ree hides. The uncertainty, as regards tariff charges was reflected in the year's business toward the end of the year.

BORNEO. One of the great islands of the world, with an area of 293,500 square miles and a population of 1,680,000. Politically, Borneo is divided into British Borneo and Dutch Borneo. British Borneo consists of British North Borneo (q. v.), Brunei (q. v.), and Sarawak (q. v.). For Dutch Borneo, which includes rather more than two-thirds of the island, see under DUTCH EAST INDIES.

BOSNIA AND HERZEGOVINA. Formerly Turkish provinces, occupied and administered since 1878 by Austria-Hungary, but by a proclamation of Oct. 7, 1908, by Emperor Francis Joseph, annexed to Austria. Area, 19,702 square miles; population, estimated in 1906 at 1,770,353. The people are mainly of Serbo-Croatian stock. In 1895, when the population numbered 1,568,092, Mohammedans made up 35 per cent. of the total; Greek-Orthodox, 43 per cent.; Roman Catholics, 21.3 per cent.; Jews and others make up the remainder. The largest cities in 1895 were Sarajevo, the capital, 41,543 inhabitants; Mostar, 17,010; Banialuka, 14,812; Dolnia Tuzla, 11,034. Education is free, but not compulsory. In 1906 there were 5 gymnasia, *realschule*, 1 military college, 11 advanced schools, for girls, 9 commercial schools, 352 elementary schools, 855 lower Mohammedan schools, 1 Greek-Orthodox and 1 Roman Catholic seminary for priests, 3 training colleges for teachers, and a college of Mohammedan law. Technical and industrial schools exist in most of the larger towns. The teaching of practical agriculture has been introduced in the village schools. Forests cover

over one-half the total area. Maize, wheat, and other cereals, potatoes, flax, hemp, tobacco, sugar-beets, inferior wine, and fruits are cultivated, and live stock rearing is important. Silk culture has been introduced. In 1906 there were exported 30,348 tons of dried plums and marmalade. In 1907 the export of tobacco and its products, mainly leaf, amounted to 622,058 kilos, valued at 1,490,166 kronen, while the import of tobacco amounted to only 1,526 kronen in value. The mineral and metal production in 1907 was as follows, in metric quintals (1 quintal = 2.0½ lbs.): iron ore, 1,506,841; chrome ore, 3,096; sulphur ore, 72,290; manganese ore, 70,000; brown coal, 6,211,788; raw iron, 489,458; wrought iron, 50,721; Martin ingots, 311,800; rails, 242,332; salt, 211,479. The total value of the mining production in 1907 was 4,511,799 kronen, an increase of 474,745 kronen over 1906; of the furnace production, 11,498,968 kronen, an increase of 624,162 over 1906; while the total net value of the mineral and furnace production (*i. e.*, after deducting the value of ores used in furnaces) was 13,458,125 kronen, an increase of 942,912 kronen, or 7 per cent. over 1906. The number of employees in the mineral, furnace, and salt works in 1907 was 6,643, an increase of 396 over 1906. The province is included in the Austro-Hungarian customs territory. The chief imports are cotton goods, cereals, and flour, clothing, colonial goods, leather, machinery, sugar, beverages, and iron manufactures. The chief exports are cereals and flour, beverages, wood, coal, and other fuels, live animals, animal products, vegetables and fruits, chemicals, iron and iron manufactures. In 1907 the imports totalled 114,492,195, and the exports 112,100,703 kronen. The length of railways in operation in 1908 was 783 miles; of telegraph lines in 1907, 1749 miles.

Previous to 1908, the administration of the provinces was under the direction of the Bosnian Bureau, which formed a section of the Austro-Hungarian Ministry of Finance. The provincial administration, centred at Sarajevo, consisted of the departments of internal affairs, finance, justice, and public works. For purposes of local administration there are 6 districts, subdivided into 54 circles. The budget for 1908 estimated the revenue at 66,487,959, and the expenditure at 66,442,018 kronen. Military service is subject to the same conditions as in Austria-Hungary. The army of occupation, hitherto numbering under 20,000, was greatly increased in 1908. The political situation will be found discussed under BALKAN QUESTION, paragraph *Austrian Annexation of Bosnia and Herzegovina*, and AUSTRIA-HUNGARY, paragraphs on *History*.

BOSTON PUBLIC LIBRARY. A public institution which embraces the library system of Boston, Massachusetts. It was founded in 1854. The total number of volumes in the library on Dec. 31, 1908, was 941,024 volumes; the total circulation in 1908 for home use was 1,555,027 volumes, of which 392,135 volumes were from the central library and 1,162,892 from branches and stations. The library had in 1907 28 branches throughout the State. The librarian is Horace G. Wadlin.

BOTANICAL SOCIETY OF AMERICA. A learned society of national scope, organized in 1893 as an outgrowth of the Botanical Club of the American Association for the Advancement of Science. Its membership in 1908 was

91, with 41 associates. It was enlarged in 1906 by federation with the Society for Plant Morphology, and Physiology, and the American Mycological Society. The President is Professor W. F. Ganong, Northampton, Mass., and the Secretary, Professor D. S. Johnson, Baltimore, Md. See BOTANY.

BOTANY. Considerable activity was to be noted along the various lines of botany during 1908. In taxonomic botany there were published many floras, monographs, descriptions of new species, etc. Along other lines of botanical activity some of the results are given below. The Botanical Society of America met jointly with the Botanical Section of the American Association for the Advancement of Science at Baltimore Md., Dec. 28, 1908, to Jan. 1, 1909. The vice-president of Section G was Dr. C. E. Bessey and of the Botanical Society, Dr. Geo. F. Atkinson. The British Association for the Advancement of Science had as its president a botanist, Prof. Francis Darwin. At the Baltimore meeting a symposium on ecology was a prominent feature of the programme, and on Jan. 1, 1909, it was proposed that the botanists and zoologists, together should celebrate the centennial of the birth of Charles Darwin and the fiftieth anniversary of the publication of his *Origin of Species*. A society of American Plant Pathologists, with Dr. L. R. Jones, of the Vermont Agricultural Experiment Station, as president, and A. D. Selby, of the Ohio Agricultural Experiment Station, as secretary, was organized. In connection with Cambridge University, England, a chair of agricultural botany was established, and Prof. R. H. Biffin was called to it.

LITERATURE. A number of important books on botany were issued during the year, among them a new edition of Strasburger's *Botany*, translated by W. H. Lang; *The Heredity of Acquired Characters in Plants*, G. Henslow; *A Handbook of Experimental Morphology*, K. Goebel; seventh edition of *Gray's Manual of Botany*, B. L. Robinson and M. L. Fernald; *North American Trees*, N. L. Britton and J. A. Shafer; *Mushrooms, Edible and Otherwise*, M. E. Hard; *Laboratory Course in Plant Physiology*, W. F. Ganong; four parts of the *North American Flora*, issued from the New York Botanical Gardens; *A Memoir on the Effect of Rays of Radium on Plants*, C. S. Gager; contributions from the Carnegie Institution which included *The Physiology of Stomata*, F. E. Lloyd; *The Topography of the Chlorophyll Apparatus*, W. A. Cannon; and *Botanical Features of the North American Deserts*, D. T. Macdougall.

Among prominent botanists who died during the year were Dr. W. A. Kellerman, for 18 years professor of botany at the University of Ohio, and Prof. Dr. Fritz Noll of the University of Halle, who is known as one of the joint authors of the so-called *Bonn Text-book of Botany*.

PLANT BREEDING. The interest in plant breeding is world-wide, and much progress was reported in 1908 from the United States, England, Germany, France, Austria, Sweden, and Italy. The greatest amount of work along this line in the United States was being carried on by the U. S. Department of Agriculture and the agricultural experiment stations (*q. v.*), but the work of Burbank and of the Carnegie Laboratory of Experimental Evolution must by no means be overlooked. The work of the Department of Agriculture and the experiment stations had already resulted in new varieties of cereals, cotton, tobacco,

co, pineapples, fruits, etc., that have desirable characters not possessed by former ones. In many of the experiments resistance to disease had been sought, and immune varieties of a number of staple crops had been secured that would make possible the cultivation of these crops in regions where their growth was practically abandoned. Among some of the prominent immune varieties were cotton and sowpeas immune to wilt, flax immune to wilt, clover that withstands anthracnose, tobacco that resists wilt, etc. Wood, Lock, Prunnett, Cramer, Cook, Waugh, Davenport, Henslow, and others published the results of their observations and experiments on heredity, variation, bud variation, etc. Lock summarized the recorded facts regarding heredity in peas and showed that the behavior of the characters in the testa and corolla conformed to Mendelian principles of segregation. Henslow, in a recent work, claimed that evolution, so far as plants are concerned, depends upon the inheritance of acquired characters, and that Darwin definitely announced this hypothesis in correspondence subsequent to the publishing of his *Origin of Species*. Biffin was continuing his studies in rust of wheat, and by hybridizing, secured varieties of wheat that are immune to rust. Hayman, in India, was experimenting along similar lines. The American Breeders' Association, organized to study the laws of plant and animal breeding, held its annual meeting in Washington, D. C., Jan. 28-30, 1908.

PLANT PHYSIOLOGY. There were announced during 1908 the results of many investigations relating to the rôle of certain substances and the functions or organs, structure, etc., in the economy of the plant. Deleano claimed, that under certain conditions plants return to the soil a portion of the mineral matter taken up through their roots. Stoklasa showed that there was an intimate connection between the assimilable potash present and the carbon dioxide assimilation of plants. Phosphorus is shown to play an important rôle in the production of chlorophyll, and Scurti claims that a correlation exists between the presence of phosphorus and the formation of proteids in plants. Proteids in seeds are directly formed from asparagin, according to Wassilieff. The rôle of fat, so far as molds are concerned, was proved to be that of a reserve material which is drawn upon during spore formation, as shown by Dubaquié, and not an elimination product, as was often claimed. Studies on the nature and function of chlorophyll were continued in many laboratories. Tsvett claimed that what is commonly called chlorophyll is in reality a mixture of two materials, chlorophyllin A and chlorophyllin B. The first, which is four or five times as abundant as the other, is of a bluish color when extracted from ether, the other green. Lubimenko found that the maximum production of chlorophyll and the optimum for photosynthesis did not coincide. He found that the optimum of photosynthesis took place in young leaves of shade-loving species and in the old leaves of the intolerant ones. He also showed the necessity of confined atmospheres within pods of peas and similar plants for the normal development of their seeds. Shaw, by comparing actinometer and black-bulb thermometer readings at mountain stations, found that light at high altitudes had a different morphogenetic value from that of the lowlands. Balls claimed that the injurious

effect of high temperatures on the growth of plants was due to the accumulation within the cell of catabolic products, and not the disorganization of the protoplasm by heat.

The presence of cyanogenetic compounds in plants was still receiving attention, and Dunstan and Henry reported poisonous quantities in red and white varieties of Burma beans. Guignard claimed that if free hydrocyanic acid was formed during germination in plants, it immediately disappears to form glucosides and other compounds. Greshoff demonstrated the transitory occurrence of cyanogenetic compounds in a number of plants not hitherto investigated, among them ferns and a number of species of arrow grasses, Juncaginaceæ. Couperot added 14 species of plants, 8 of them grasses, to the already long list of those known to yield hydrocyanic acid under certain conditions. Ciamician and Ravenna, in studying the rôle of glucosides, concluded that they are reserve materials, and that in this form the plant stores substances which in a free state would not be tolerated.

In studies of the nutrition of plants, Hasselbring has shown that some of the lower plants readily assimilate alcohol, acetic acid, and similar substances to supply their carbon requirements. Petit practically tested the ability of plants to utilize glucose absorbed through their roots by attempting to force a number of species grown in large pots, but with negative results. In some cases the glucose proved injurious. The action of sulphur dioxide, arsenic, and other substances in the smoke and gases of smelters, blast furnaces, etc., continue to be a subject of investigation, and Weiler found that sulphur dioxide in the air seriously interfered with carbon dioxide assimilation. Haywood showed that forests were injured by sulphur fumes to a distance of 15 miles from a large smelter, and that arsenic was present in considerable quantities. Hasselhoff reports similar observations in Germany. Gerlach found 0.465 per cent., sulphuric acid in twigs injured by smoke and gas. Swain and Harkness report finding 0.0263 per cent. arsenic trioxide in plants that were grown 5 miles from a smelter. The effect of illuminating gas on the flowering of carnations was studied by Crocker and Knight, and they found that the injury was in proportion to the amount of ethylene in the gas, 1 part to 2,000,000 causing the flowers to close. Osterhout pointed out the resemblance between gas injury and the effect of drought on plants, and shows that the young leaves are the first to show the effects of gas, while the older ones are the first to suffer from drought.

Gager studied the effect of radium on plants at the New York Botanical Gardens, and found that while it had a retarding effect on germination, the later growth of many plants was stimulated. Guillemot got similar results with X-rays and radium. It had been considered that the vitality of seed could be estimated by the occurrence of peroxidase, and Brocq-Rousseau and Gain showed that peroxidase does not persist in seeds that are much over 20 years old and in many species for a less time. Priestly reported the stimulating effect of an overhead discharge of electricity on various plants, but he does not think it is associated with starch formation, as claimed by Pollacci.

PLANT PATHOLOGY. An international association was formed for the exchange of information regarding the suppression of fungus and insect plant pests. Life history studies of a number of

groups of fungi to determine the alternate host species, etc., were continued. Arthur showed by cultural studies, the possibility of connecting the scedial and uredo stages of a number of rusts. Olive made cytological studies of rust, and found that the change from a uninucleated to a binucleated form of cell is a stage in the sporophyte generation. Freeman and Ueberger have contributed the information that of the two sorghum smuts in the United States, the grain smut is by far the most prevalent and its occurrence may be prevented by soaking the seed before planting in a weak solution of formalin. The head smut appears confined to a portion of Texas. Hedgecock has shown the possibility of transferring the soft form of crown-gall of fruit trees and shrubs to many host plants. E. F. Smith successfully isolated the organism that causes the olive knot disease. Scott and Rorer investigated the leaf spot of apples and found it due, in a large measure, to *Sphaeropsis malorum*, a fungus that causes the black rot of the fruit. Eustace reported that most of the rotting of apples in cold storage is due to the mold *Penicillium glaucum*. Fumigation with sulphur destroyed the spores of other fungi but not the mold, and the commercial value of the fruit was impaired. Brooks investigated a fruit spot of apples, which, from its frequent occurrence on that variety, was often called the Baldwin spot, and finds it due to the fungus *Cylindrosporium pomi*. Spraying with Bordeaux mixture will prevent its appearance. Smith and Butler, of the California Agricultural Experiment Station, described a gum disease of citrus trees that appeared to be due to physiological disturbances. Wolf reported the occurrence in Nebraska of a fruit rot of grapes due to *Pestalozzia uvicola*, a fungus not hitherto reported in America. A dry rot of corn caused by *Diplodia zeæ* was reported by the station botanists in Illinois and Nebraska. It causes a premature ripening and shriveling of the grain and is responsible for considerable losses. In France during 1908 two unusual diseases were quite prevalent, an oak mildew and a leaf disease of fir trees. Neither disease is expected to prove destructive except in abnormal seasons. The presence of the American gooseberry mildew (*Sphaerotheca mors-uvæ*) and a new disease of potatoes, called black scab, due to *Chrysophlyctis endobiotica* have occasioned much uneasiness in England and Germany during the past year. Headden reports from Colorado a serious injury to fruit trees that is attributed to arsenical poisoning arising from accumulated arsenic from spraying for codling moth. The destructive chestnut tree disease (*Diaporthe parasitica*) seems to be spreading, according to Murrill, Sterling, and others, and Murrill failed to find the immunity of the Japanese chestnut reported by Metcalf. Jones reported the damping off of coniferous seedlings and says the trouble may be prevented by spraying the seed beds with formalin 5 or 6 days before seeding. Spaulding showed that spraying dilute sulphuric acid over the seed beds several days before seeding will reduce damping off. The treatment should be repeated several days after the seedlings come up. A number of investigators have reported biological races of species of fungi that are limited to definite host plants, but Reid, from study of the common mildew, *Erysiphe cichoracearum*, thinks there is some doubt of the existence of such specialized forms.

Progress was reported in the means for the

prevention of plant diseases. Scott and others showed the value of a lime-sulphur spray when applied for scale insects as a means for preventing apple scab. The efficiency of Bordeaux mixture for the prevention of potato diseases was shown by the New York State Experiment Station, where in coöperative experiments with farmers five sprayings gave increased net profits of \$17.07 per acre; and in Wisconsin, where as much as \$21.70 per acre increased profits were obtained through spraying. The control of smut of winter barley proved a difficult matter, but Heald found that if the seed grain were soaked for 4 hours in cold water and then for 5 minutes in water heated to 126° to 130° F. the smut would be destroyed without injury to the grain. In Germany it was found that after soaking the seed in cold water, running it through an air drying machine heated to about 145° F. would give similar results with barley, but the treatment was not as efficient for preventing wheat smut. Briggs has shown that the root rot of tobacco due to *Thielavia basicola* may be greatly reduced in the field by the use of fertilizers that will reduce the alkalinity of the soil.

BOURNE, EDWARD GAYLORD. An American historian, died on Feb. 24, 1908. He was born in Strykersville, N. Y., on June 24, 1860, graduated in 1883 at Yale, and was instructor in history and lecturer on political science there in 1886-89. In the latter year he became instructor of history, and in 1890 professor of that subject, at Adelbert College. He was appointed professor of history at Yale in 1895, and held that position at the time of his death. He became chairman of the Historical Manuscripts Commission, of the American Historical Association, in 1901. He published many critical papers on historical subjects, several of which are included in a volume, *Essays in Historical Criticism* (1901). These essays show painstaking research, and critical sifting of evidence, and one of them, *The Legend of Marcus Whitman*, discredits the importance of Whitman's celebrated ride across the continent from Oregon to Washington, and of his efforts to demonstrate to the government the value of the Oregon territory. Professor Bourne's other books include: *The History of the Surplus Revenue of 1837* (1885); *Historical Introduction to the Philippine Islands* (1903); *Spain in America* (1904); and *Discovery, Conquest and History of the Philippine Islands* (1907). He edited Wooley's *A Two Years' Journal of New York* (1902); Fournier's *Napoleon I.* (1903); Roscher's *Spanish Colonial System* (1904); and edited and translated *The Narrative of De Soto* (1904); *The Voyages of Champlain* (1905); and the *Narratives of Columbus and Cabot* (1906).

BOWDOIN COLLEGE. An institution of higher learning at Brunswick, Me., founded in 1794. The attendance in the autumn of 1908 was 428, which was the largest in the history of the college. During 1907-8 the alumni and friends of the college raised the sum of \$277,000, as an addition to the general fund. The college was admitted during the year to the benefits of the Carnegie foundation. The faculty numbers 57. The library contains 91,546 books. The productive funds of the college in 1908 were \$1,379,894 and the income \$91,396. The President is Dr. William Dewitt Hyde.

BOWLING. The American Bowling Congress held its eighth annual tournament at Cincinnati Feb. 9-23. The individual championship was won by A. Wingler of Chicago, who rolled

699 in three games. In the two-men team contest, Kiene and Chalmers of Chicago won with a score of 1,254 for three games. The five-men team championship was won by the Bonds of Columbus, Ohio, with a total of 2,927 pins. The all events (nine games) championship went to R. Crable of East Liverpool, Ohio, who rolled 1,910. In the second annual tournament of the National Bowling Association held at Rochester, N. Y., Mar. 2-14, the winners and scores were: Individual, Fred Schwartje, Brooklyn, 697; two-men team, McGuirk-Grady, Paterson, N. J., 1,318; five-men team, Brunswick, New York, 2,893; all events, Larry Erdman, Brooklyn, 1,956.

BOXING. The boxing championships of the Amateur Athletic Union were held at Boston, Mar. 24-25. The victors in the final bouts were: 105-pound class, Angus McDougall, Boston; 115-pound class, M. J. Carroll, New York; 125-pound class, Edward J. Walsh, New York; 135-pound class, J. Denning, New York; 145-pound class, William Rolfe, Boston; 158-pound class, Henry Hall, Boston; heavyweight class, Thomas Kennedy, New York. The important event of the year in pugilistic circles was the defeat of the heavyweight champion, Tommy Burns, by Jack Johnson (colored). The contest took place in Sydney, Australia, on Dec. 26, and was witnessed by 18,000 people. Johnson had the advantage in weight and height and would undoubtedly have knocked out Burns if the police had not stopped the fight in the fourteenth round.

BOYCOTT. The year 1908 was a memorable one for the development of the United States law on the boycott. The most important decision was that in the case of *Loewe vs. Lawlor et al.*, known as the Danbury Hatters' case. Loewe and Company, hat manufacturers of Danbury, Conn., brought suit against the United Hatters of North America to restrain the latter from prosecuting a boycott against the plaintiff's hats. The manufacturer declared an open shop, and discarded the use of the union label, whereupon his employees belonging to the Hatters' Union induced the latter to institute a boycott throughout the United States. The lack of unanimity of American courts as to the status of trade union activities was shown by the fact that, although the United States Circuit Court dismissed the complaint and was sustained by the Circuit Court of Appeals, the Supreme Court unanimously overruled both lower courts by finding in favor of the plaintiff. The latter contended that the boycott constituted a combination in restraint of trade and was therefore in violation of the Sherman Anti-Trust Law of 1890. The court's decision was based on sections 1, 2, and 7 of that Act. Section 1 declares "every contract combination in the form of a trust or otherwise, or conspiracy, in restraint of trade" to be illegal and fixes punishment for violation at not more than \$5,000 fine, or imprisonment for one year, or both. Section 2 forbids monopoly and fixes similar punishments. Section 7 provides that any person who is injured in his business through any act forbidden by this law may sue to recover three-fold damages. The court held that the tradeunion in exercising the boycott constituted a "combination in restraint of trade among the several States," in that it obstructed the free flow of commerce and restricted the right of the plaintiff to engage in business, by

trying to compel him to do business only in the way the union imposed. As the plaintiff was able to show losses aggregating \$80,000 as the result of the boycott, he was authorized to sue for \$240,000 damages.

The decision aroused the widest interest; and among trade unions, most intense opposition. The decision raised serious doubts as to the legality of labor unions themselves. It was at any rate made clear that the highest court in the land will not sustain a combination whose primary aim is the injury of the business of another party, even though the members of the combination will be helped. President Samuel Gompers, of the American Federation of Labor, said: "Every normal, peaceful activity of workers, individually and in association, may be construed as conspiracy in restraint of trade." He contended that labor is not a commodity, hence no trust in it could be formed; that so long as men are free they may dispose of their labor and their patronage as they see fit; and that what is legal for one man must be legal for many in association. Under his lead the trade unions sought redress through Congressional action amending the Sherman Act. See LABOR, AMERICAN FEDERATION OF.

In apparently direct contradiction to the decision of the Supreme Court in the Hatters' case, was that handed down June 1 by the Supreme Court of Montana in the case of *Lindsay and Company vs. Montana Federation of Labor et al.* Lindsay and Company, wholesale dealers in fruits and vegetables, had been declared "unfair" by the Miners' Union and Trades Assembly. This action was endorsed by the Montana Federation and a circular issued in which "all laboring men and those in sympathy with organized labor are requested not to patronize Lindsay and Co." The company secured an injunction nullifying this boycott, but the Supreme Court of the State vacated the injunction. It was clearly shown that the company's trade had suffered as a result of the boycott. The opinion of the court is worthy of considerable attention. The boycott was defined by quoting from an opinion of the Supreme Court of New York, as "the act of combination, in refusing to have business dealings with another until he removes or ameliorates conditions which are deemed inimical to the welfare of the members of the combination, or some of them, or grants concessions which are deemed to make for that purpose." A conspiracy was defined as "a combination of two or more persons by some concerted action to accomplish a criminal or unlawful purpose, or to accomplish a purpose, not in itself criminal or unlawful, by criminal or unlawful means." The court held that the company did not have a property right in the trade of any particular person; hence any one person may rightfully withdraw his patronage. "But," says the opinion, "there can be found running through our legal literature many remarkable statements that an act perfectly lawful when done by one person becomes by some sort of legerdemain criminal when done by two or more persons acting in concert, and this upon the theory that the concerted action amounts to a conspiracy. But with this doctrine we do not agree. If an individual is clothed with a right when acting alone, he does not lose such right merely by acting with others." Hence, "if the

defendants did not violate any legal right of the plaintiff in withdrawing their patronage, they cannot be enjoined from continuing the boycott in force, so long as the means employed to make the boycott effective are not illegal." The means adopted in this case was the publication of the circular above noted. The court held that such publication by one person or by an association was perfectly legal, being an exercise of the right of free speech and free press. President Gompers made much of this decision in his reply to President Roosevelt during the presidential campaign.

Congress having taken no action to amend the Sherman Act, the American Federation of Labor endeavored to induce the party conventions to declare in favor of an amendment to the Sherman Anti-Trust Law, exempting trade unions from its provisions. The Republican platform made no statement whatever on this point, but the Democratic platform contained the following declaration: "The expanding organization of industry makes it essential that there should be no abridgement of the right of wage earners and producers to organize for the protection of wages and the improvement of labor conditions, to the end that such labor organizations and their members should not be regarded as illegal combinations in restraint of trade." See **PRESIDENTIAL CAMPAIGN**.

For the events growing out of an attempt of the American Federation of Labor to boycott the Buck's Stove and Range Company, see **INJUNCTIONS and LABOR, AMERICAN FEDERATION OF**.

BRADLEY, WILLIAM O'CONNELL. An American politician, United States Senator (Republican) from Kentucky. He was born at Garrard, Ky., on Mar. 18, 1847, and was admitted to the bar in 1865. In 1870 he was elected prosecuting attorney and two years later was a presidential elector and an unsuccessful candidate for Congress. He was again a Congressional candidate in 1876, but was again defeated. From 1880 to 1904 he was delegate-at-large to each Republican National Convention, and in the Convention of 1888 was a prominent candidate for the vice-presidential nomination. He was four times the unsuccessful nominee of his party for the United States Senate, and in 1887 was defeated for Governor. In 1889 he was appointed minister to Korea, but declined. He was elected Governor in 1895, being the first Republican to hold that office. The following year he was endorsed for President by the Kentucky Republican Convention. On Feb. 2, 1908, he was chosen United States Senator, owing his election to the support of Democratic legislators, who refused to vote for their own candidate. His senatorial term will expire on March 3, 1915. See **KENTUCKY**.

BRANDY. See **LIQUORS, FERMENTED AND DISTILLED**.

BRAZIL, UNITED STATES OF. The largest republic of South America, consisting of twenty States and a Federal District. Area, 3,218,139 square miles, exclusive of the Acre territory (73,720 square miles). Population (1900), 17,371,069; in 1907 it was estimated at 19,910,646. The population of the Acre territory was estimated at 70,000. The population of the Federal District in 1906 was 811,443 (463,453 males and 347,990 females). The principal cities, with their populations, according to the

latest censuses or estimates, are as follows: Rio de Janeiro (1906), 628,041 (361,544 males and 266,497 females; São Paulo (1907), 274,000; Bahia, 230,000; Pernambuco, 120,000; Pará (Belém), 100,000; Porto Allegro, 80,000; Campinas (1907), 83,000; Santos, 73,500; Ribeirao Preto, 56,800; Jahn, 49,000. The number of arrivals at the ports of Brazil in 1907 was 239,256, and of departures 202,660, giving an excess of 36,596 for arrivals. In the latter part of 1907 the States of Rio de Janeiro and São Paulo contracted with the Japanese Emigration Company for the introduction of Japanese laborers to be employed on the coffee and rice plantations. Rice is usually harvested in March, while the coffee harvest begins in June, so that the same laborers may be employed in gathering both. The first party of 781 Japanese arrived in June, 1908.

MINING. Gold is worked in the States of Bahia and Minas Geraes; its export in 1906 amounted to 4,547,940 grams. Diamonds are mined in these two States as well as in others; their export in 1906 was valued at about \$300,000. Other precious stones are also found. Coal is mined in Rio Grande do Sul and Santa Catarina. It has been proven that a carboniferous vein extends from the southern part of São Paulo into Rio Grande do Sul. The greater part of the world's supply of monazite comes from Brazil. The deposits lie along the coast of Bahia and Espirito Santo, in the sand banks and dunes of the beaches. The gravel deposits along certain rivers of the interior are also being worked for monazite. Its export in 1907 amounted to 4,437 tons, against 4,352 tons in 1906. Bismuth was discovered near the city of Campo Alegre.

AGRICULTURE. The entries of coffee into Brazilian ports from all sources during the year ending June 30, 1908, amounted to 11,349,271 bags of 60 kilos each, against 20,409,180 during the preceding year—a reduction of 43.3 per cent. The shipments of coffee to foreign countries during 1907-8 amounted to 12,953,572 bags, against 11,470,116 bags in 1906-07. Of the total coffee export, the United States took 5,136,446 bags in 1907-08, against 6,310,452 bags in 1906-07. In pursuance of the valorization scheme, aiming at the government support of the coffee market, the government of São Paulo purchased some 8,000,000 bags of coffee and shipped them to Havre, Hamburg, Rotterdam, New York, Bremen, London, and Antwerp. It declared that it would sell its coffee holdings according to the requirements of the market, and that it was prepared to hold its purchases for years, if necessary. The object of the State government was to prevent a collapse in price as a result of the record crop of 1906-7. In this it succeeded, and fairly remunerative prices were maintained. The State government also entered into a contract with two British firms to conduct a coffee propaganda in Great Britain and its colonies in return for a subsidy of £50,000. The long pending negotiations for the £15,000,000 coffee loan, for the refunding of all previous coffee loans contracted by the State of São Paulo in connection with the coffee valorization plan, were consummated on Dec. 9, 1908. The loan was made on condition that no more coffee shall be bought by the government, and thus marks the end of valorization as a permanent policy. It was contracted by the State of São Paulo, but is guaranteed

by the Brazilian government. The bonds bear 5 per cent. interest, mature in 1919, unless called earlier, and were offered at 92½ simultaneously in New York, London, Paris, Berlin, and Brussels.

About one-sixth of the world's supply of cacao comes from Brazil, the crop of which for 1907 was estimated at 53,683,000 pounds, against 55,102,456 in 1906. The production of yerba maté in 1907 was 57,716,503 kilos (1 kilo = 2.205 lbs.), valued at 16,302,881 milreis (1 milreis = 30 cents). The export of rubber in 1906 amounted to 34,960,184 kilos, valued at 210,284,551 milreis, and in 1907, 36,489,772 kilos, valued at 217,504,288 milreis. In the latter year the United States took 16,811,251 kilos of Brazilian rubber; Great Britain, 14,353,634; France, 2,506,161, and Germany, 2,331,248 kilos. Brazil is a large producer of sugar, imports of which are kept out by a high protective duty. At the same time the price is raised for the domestic consumer by the sugar trust, which exports one-fourth of the crop in order to command a high price for the remainder. The cotton production in 1907 amounted to 370,000 bales of 500 pounds each. The *gravatá* plant, which abounds in the coast region of the States of Rio de Janeiro and Espirito Santo, is said to yield a fibre rivalling the henequen of Mexico. In the north of Rio de Janeiro it has been extracted on a small scale for many years, but recently companies were formed for its cultivation and extraction on a large scale. The *hebisco*, another fibre plant, grows wild in the valley of the San Francisco river, in the northern States. The export of Brazil nuts in 1908 was 165,921 hectolitres (2.84 U. S. bushels each), of which 89,898 went to the United States.

STOCK-RAISING AND DAIRYING. The greatest obstacle to the development of stock-raising is the lack of means of transportation. Nevertheless the State of Matto Grosso is supposed to have not less than 3,000,000 cattle, and Goyaz slightly less. In the former State there are ranches many hundreds of miles in extent, with herds of from 120,000 to 200,000 head. In the States of Minas Geraes, São Paulo, and Rio de Janeiro well-established dairies have been successfully operating for some years, and the product of these is constantly increasing. Minas Geraes in 1907 was the largest producer of dairy products. Its export of dairy products to other States in 1907 were as follows: Milk, 11,221,400 pounds; cheese, 10,195,900 pounds; butter, 3,136,900 pounds. The greater part of these products was consumed in the large cities of the States of Rio de Janeiro and São Paulo. The State of Rio de Janeiro is now furnishing these cities an almost equal amount of milk and butter, but very much less cheese.

MANUFACTURES. In 1907 the total number of industrial establishments of every description was 2,292, with 123,931 employees, \$162,818,700 of invested capital, and an annual production of \$186,633,000. Included in these were 137 cotton factories, with 41,018 employees, \$59,682,900 of invested capital, and an annual production of 251,119,600 metres of cloth. Of the total capital invested in Brazilian establishments, over 36 per cent. was represented by cotton factories. There were five large establishments for the manufacture of the immense number of coffee bags needed for

the yearly crop, and this industry is protected by a high duty. These factories have as yet only looms and buy their jute yarns abroad, mainly in Dundee, Scotland. In 1907 the mills turned out 172,797 metric tons of flour, against 162,147 tons in 1906, showing an increase of 6.5 per cent. At the same time the consumption of flour increased from 316,093 metric tons in 1906 to 343,050 tons in 1907, showing an increase of 8.5 per cent; and the importation of flour increased from 153,946 tons in 1906 to 170,253 tons in 1907—showing an increase of 10.6 per cent. Argentina furnishes three-fourths of the flour imports, and nearly the whole of the wheat ground in Brazilian mills.

FOREIGN COMMERCE. In 1907 the total imports were valued at \$197,261,840 (on the basis of 30 cents to the milreis), against \$161,039,600 in 1906, and the exports, \$263,749,204, against \$257,338,500 in 1906. In milreis the imports were valued at 644,937,744 and the exports at 861,134,736. By great classes, the imports were as follows, in milreis: Live stock, 2,691,748; raw materials, 128,723,225; manufactures, 340,419,554; foodstuffs and fodder, 173,103,217. The leading imports in 1907 were as follows, in milreis: Jute and hemp yarn, 12,695,265; coal, 32,800,698; cotton goods and wearing apparel, 61,158,422; woolen goods, 9,551,790; tubes, pipes, etc., 11,819,710; iron and steel and manufactures thereof, 74,278,612; industrial machinery, 7,649,970; implements and tools, 7,089,480; locomotives, 5,124,463; kerosene oil, 11,410,517; codfish, 13,976,541; wheat flour, 31,696,204; wheat, 26,686,512; jerked beef, 17,345,162; wines, 31,320,589. The leading exports in 1907 were, in milreis: Hides, dry and tanned, 27,373,643; skins, 11,432,815; monazite sand, 1,598,088; manganese, 8,009,785; gold, 6,521,962; raw cotton, 27,499,919; rubber, 217,504,288; cacao, 32,043,979; coffee in the bean, 453,764,571; maté, 25,619,177; leaf tobacco, 20,050,817. The trade with the leading countries of origin and destination was in 1907 as follows:

From and to	Imports	Exports
Germany	\$30,221,171	\$45,084,631
Austria-Hungary	3,296,324	7,425,934
Belgium	7,822,136	14,240,398
France	18,009,320	35,020,373
Netherlands	1,116,930	10,383,487
Italy	6,976,230	1,531,614
Portugal	11,447,385	1,824,186
Great Britain	59,073,835	42,077,661
United States	25,139,390	84,721,265
Uruguay	5,476,962	3,616,205
Argentina	17,645,245	8,562,137

Compared with 1906, the imports from Germany increased 27.6 per cent.; from Great Britain, 30.8 per cent.; and from the United States, 35.9 per cent. At the same time the exports to Germany increased 7.0 per cent.; to Great Britain, 1.3 per cent.; and to the United States, 6.4 per cent.

SHIPPING AND NAVIGATION. In 1907 the merchant marine, comprising vessels of 100 tons and over, consisted of 283 steamers, of 119,930 net tons, and 78 sailing vessels, of 19,597 net tons. The ports were entered in 1906 by 17,764 vessels of 14,464,937 tons, of which 13,430 vessels, of 5,579,896 tons, were Brazilian.

INTERNAL COMMUNICATIONS. The total railway mileage at the end of 1908 was 11,572 miles, of which 5,572 miles were owned by the State and Federal governments, and about 6,000 miles by private companies. On Jan. 1, 1908, the length of railways under construction was about 2,060 miles, while plans had been approved for 4,150 miles. During the year 1907 about 435 miles were added in various parts of the country, and in 1908 633 miles, the largest amount in any single year. Arrangements were being made in the middle of 1908 for the immediate construction of the railway connecting the present governmental system in São Paulo with the Bolivian frontier at Corumba. The contract called for the completion of the 685 miles of the road in thirty months. Work was to be pushed from both terminals, and it was expected that by March, 1909, the road starting from Bauru, in São Paulo would reach Itapura, on the Parana. The entire work is to be done by the French syndicate which has been prosecuting the work in São Paulo for the past year. This line will form an important link in the projected Pan-American railway. The length of telegraphs was 25,927 miles, of which 490 miles were added during the year. More than one-half of this addition was on the line which is to connect the Acre territory and Amazonas with Matto Grosso and other States. A highway to connect the seats of the three administrative divisions into which the Acre territory has been divided—Alto Jurua, Alto Purus, and Alto Acre—was to have been completed by the end of 1908. It was built with a view to the running of a line of automobiles between these three points. It was calculated that the trip between Alto Jurua and Alto Purus would be made by automobiles in fifteen days, and from Alto Purus to Alto Acre in two days.

BANKS AND MONEY. The Bank of Brazil has a capital stock of 70,000,000 milreis, the government holding one-third of its shares. In accordance with the law of Nov. 28, 1907, the government has established the Agricultural Bank, with a capital of 30,000,000 milreis. There are five so-called foreign banks doing business in Rio de Janeiro. They are the London and River Plate Bank, with a subscribed capital of £2,000,000, a paid-up capital of £1,200,000, and a reserve fund of £1,200,000; the London and Brazilian Bank, with a capital of £2,000,000, a paid-up capital of £1,000,000, and a reserve of £910,000; the British Bank of South America, with a capital of £1,300,000, a paid-up capital of £650,000, and a reserve fund of \$535,000; the Brazilianische Bank für Deutschland, with a realized capital of 10,000,000 marks; and the Banco Commerciale Italo-Brasiliiano, with a paid-up capital of 5,000,000 milreis, and a reserve of 1,000,000 milreis, the last named being organized in Brazil, but owned largely in Italy.

There is little metallic money in circulation. The total amount of gold coined from 1903 to 1907 inclusive was 114,600 milreis in gold and 9,054,158 milreis in silver. This is practically all the coin in circulation. The Caixa de Conversao, or exchange bureau, has issued since its organization on Dec. 21, 1906, a total of 98,350,120 milreis. This money is exchangeable for gold at the rate of 30 cents to the milreis, and is issued against gold in the Brazilian treasury. The amount of inconvertible paper money in circulation has been reduced in recent years; on Feb. 29, 1908, it amounted to 642,963,951 milreis, against 788,351,614 on Aug. 31, 1898. The gold milreis is equal to 54.6 cents.

FINANCE. The revenue of the Republic for 1907 consisted of 100,605,000 milreis gold, and 317,930,000 milreis paper; the expenditure of 59,701,000 milreis gold, and 352,983,000 milreis paper. The approved budget for 1903 estimated the total revenue at 75,279,380 milreis gold, and 258,979,900 milreis paper, and fixed the expenditure at 65,625,605 milreis gold, and 329,470,857 milreis paper. The following are the principal sources of revenue according to the estimates:

	Gold	National paper
	<i>Milreis.</i>	<i>Milreis.</i>
Import duties	72,100,000	120,550,000
20 per cent. of the export duties of the Acre territory .....	.....	18,006,000
Internal revenues	1,514,006	70,994,000
Excise taxes .....	.....	38,155,000
Extraordinary revenues	1,214,714	10,000,000

The expenditures are distributed as follows:

	Gold.	National paper.
	<i>Milreis.</i>	<i>Milreis.</i>
Department of Justice and the Interior.....	10,700,000	35,267,250
Department of Foreign Relations	2,406,400	1,809,800
Navy Department	8,541,062	36,006,256
War Department	110,000	59,817,173
Department of Industry, Ways, and Public Works	9,155,561	88,223,188
Treasury Department ..	29,186,849	89,848,818

The budget for 1909 estimated the ordinary revenues at 79,694,198 gold and 274,238,000 paper milreis; the ordinary expenditures at 75,390,272 gold and 330,352,781 paper milreis. The consolidated foreign debt of Brazil on Dec. 31, 1907, stood at £72,133,457; the internal debt amounted on Mar. 31, 1907, to 552,476,592 milreis; the floating debt on Mar. 31, 1907, to 277,037,604 milreis; and the paper money in circulation on Dec. 31, 1907, was 643,531,727 milreis.

ARMY. A law was passed in Jan., 1908, reorganizing the army and making military service obligatory on all citizens between the ages of twenty-one and forty-four years. The period of service is divided as follows: 1st line: nine years, two in the ranks and seven in the reserve; 2nd line: seven years, three in the first ban and four in the second; 3rd line: eight years, four in the national guard and four in the reserve. The effect of this law remains to be seen, but the strength of the army at the time of its adoption while supposed to be about 28,000 men was in reality only about half that number. The army consisted of 40 battalions of infantry, 14 regiments of cavalry, 6 battalions of coast artillery, 6 regiments of horse artillery, and 2 battalions of engineers, together with some auxiliary troops including rural guards (gendarmierie) to the number of 20,000. The War Minister announced that within a decade Brazil would have nearly 500,000 men on a war footing.

NAVY. The navy consisted, at the beginning of 1908, of 1 battleship, third class, 5,800 tons; 2 armored coast defense ships, 6,400 tons; 7 protected small cruisers, 15,120 tons; 1 gunboat, 800 tons; 1 destroyer, 600 tons; and 8 torpedo

boats, 1,100 tons, giving a total of 20 ships, of 29,920 tons. The personnel numbered about 3,700. The programme of naval construction, in process of execution, in 1908, included 3 battleships of the "Dreadnought" type of 19,250 tons each, which were building in England at a cost of \$9,000,000 each; 3 scout cruisers of 3,500 tons each, at a cost of \$1,350,000 apiece; 18 destroyers of 600 tons each, at a cost of \$325,000 apiece; 1 mine layer of 3,000 tons, to cost \$750,000; besides a few submarine and torpedo boats. The total tonnage will be 80,000, and the aggregate cost, \$39,500,000.

In addition to the battleships there were under construction in England: 2 scout cruisers, 10 destroyers, 10 sea going torpedo boats, and 5 submarines. Newspaper rumors, without foundation, were widely circulated that the battleships were to be sold to Japan, or to Great Britain.

HISTORY. On Jan. 13, 1908, President Penna decreed the reduction of the tariff duties on several United States products, in return for the favor shown by the United States to Brazilian coffee, and by way of celebrating the visit of the American fleet. The fleet arrived at Rio Janeiro on Jan. 14. A national exhibition was held in the last six months of 1908, which, according to the president, was intended as "an opportunity for foreigners to judge adequately concerning the salubrity of the climate and the natural wealth of the country, as well as the progressive character of its industries." Permission was accorded to the United States to make an exhibit of agricultural implements, and it was arranged that a Brazilian-American permanent sample-exposition should be established for the display of such articles as American manufacturers desired to introduce to the Brazilian markets. It was made a national rather than an international exposition, to celebrate the one hundredth anniversary of the opening of the Brazilian ports. Its site comprised more than 500 acres, and the main building covered an area of 38,750 square feet. Portugal was the only foreign nation invited to participate, this exception being made because of the ancestral relation between the two countries.

Japanese immigration under the new arrangement between the Japanese and Brazilian governments began in June. The first arrivals were in a short period of time distributed among the coffee plantations in the State of São Paulo. This marked the first stage of a scheme for Japanese colonization. An agreement concluded late in 1908 between the Brazilian government and the Imperial Emigration Company of Tokio provided that 3,000 Japanese colonists between the ages of twelve and forty-five, and of sound health, should be brought over within two years at the cost of the Brazilian government. At the same time the policy of encouraging white immigration was continued, free passage and a homestead being guaranteed to bona fide settlers from Europe. The ultimate aim of the government is to build up a class of peasant proprietors who shall be at the same time available for labor on the great coffee plantations. Under the present system of hired plantation labor, the field hands are accustomed to migrate in hordes from place to place, leading to violent fluctuations in the labor market and depriving the country of the advantages that come from a land-owning and stable population.

The treaty between Brazil and Holland, fixing the boundary lines of Dutch Guiana, was

ratified Sept. 15, 1908. The treaty dates from May 5, 1906, and provides for a mixed commission appointed by the two governments which shall determine the lines; any controversy arising during their deliberations to be submitted to the Permanent Court of Arbitration at the Hague. A general arbitration treaty between Brazil and Argentina, dating from Sept. 7, 1905, was ratified by Brazil Oct. 1, 1908, and the exchange of ratifications took place on Dec. 5, 1908, when the treaty went into force. In spite of this agreement the competition in increased armaments which Brazil has entered against Argentina (q. v.) showed no signs of abating. On Sept. 10 the new Brazilian battleship, the *Minas Geraes*, regarded as the most powerful warship afloat, was launched at Newcastle-on-Tyne. A second vessel of the same type was then nearing completion and the construction of a third battleship was begun.

BREAKWATERS. A breakwater nearing completion in 1908 and possessing some novel features, was being built by the United States government in connection with the formation of a small harbor at Algoma, Wis., on the west shore of Lake Michigan. Five hundred feet of reinforced concrete caissons were to be used on that portion of the wall most exposed to the action of the waves. The caissons were, in effect, great reinforced concrete boxes which, made on shore, were floated into position, sunk until resting upon a pile foundation, and then filled with rip-rap floated in thin mortar. Upon this the superstructure, monolithic in form, was built, while large stones were placed against the toe on both the harbor and lake sides of the wall, to prevent scouring.

BREEDERS' ASSOCIATION. See STOCK RAISING.

BREEDING OF ANIMALS. See STOCK RAISING.

BREEDING OF PLANTS. See BOTANY.

BRETHREN, CHURCH OF THE, also known as **DUNKERS** or **DUNKARDS**. A considerable body of Christians, whose faith and practice are not generally known outside of the localities in which they live. They originated at Schwarzenau, Germany, in 1708, with Alexander Mack as their leader. Persecution drove them to this country, and their first settlement was at Germantown, Pa., in 1719. They recognize the New Testament as their rule of conduct, believe in the Trinity, hold faith, repentance, and baptism by triple immersion as conditions of pardon and membership. They observe foot-washing as a religious rite, followed by an evening meal, which they call the Lord's Supper. The Eucharist is a separate service, following the supper. Their mode of greeting is the kiss of love. They take no part in war, dress plainly, live simple, industrious lives, and are generally well-to-do. There are three groups of them,—the Conservatives, Progressives, and Old Orders. The Conservatives are the most numerous and number about 100,000, having 870 congregations, 2,938 ministers, 10 colleges, and one of the largest denominational printing plants in the West, known as the Brethren Publishing House, located at Elgin, Ill. The *Gospel Messenger*, a large religious weekly, is their organ. At their publishing house in Elgin a number of other publications are issued. The Brethren have missions in Denmark, Sweden, France, Switzerland, Asia Minor, India, and China. The latter was open-

ed in the fall of 1908. At their General Conference, held at Des Moines, Iowa, June, 1908, they celebrated their Bicentennial, and also changed the name of their organization from "German Baptist Brethren" to "Church of the Brethren." "Dunker" is a nickname that they do not recognize. Their next General Conference is to be held at Harrisonburg, Va., beginning June 1, 1909. The Progressive Brethren number about 17,000 and the Old Order Brethren, 4,000. The former have a college and a publishing house at Ashland, Ohio. There are settlements of the Brethren—as they always call themselves—in nearly all of the northern and western States. In some of the eastern and middle States, they are quite numerous. The small body known as Seventh Day German Baptists is now nearly extinct. There are only a few members left, and these live in the vicinity of Ephrata, Pa.

BRIDGES. Two new bridges over the Rhine at Cologne were being built during 1908. The smaller, and the southerly one, which is to carry two railway tracks and two cantilevered footwalks, consists of two arched trusses, spaced 26 feet apart in the clear, and provides for a 150 metre (492.12 feet) clear span at the centre of the channel, with a 30 metre (98.43 feet) clearance at high water, and side channel spans of 90 metres (295.27 feet) and 40 metres (131.23 feet). Three steel arch-truss spans over the river part, two of 333 feet each and one of 541 feet, and three true arch spans on the right bank of 183.7 feet each, will be employed, the former being through arches with both chords rising above the roadway, while the latter are of the deck type. A total of 5,500 tons of steel will be required, and the cost is estimated at \$1,250,000, including in this both the approaches and the foundations. It was to have been completed by 1911, but the failure of the 200-foot steel erection truss, by which 8 lives were lost, was expected to cause some delay. The wrecked truss was part of the centering for the 541-foot arch span, the centering on each side consisting of pile trestle, and was erected so as to provide a free channel 200 feet wide for vessels bound up stream, while a similar opening in another part of the structure was left for those bound down.

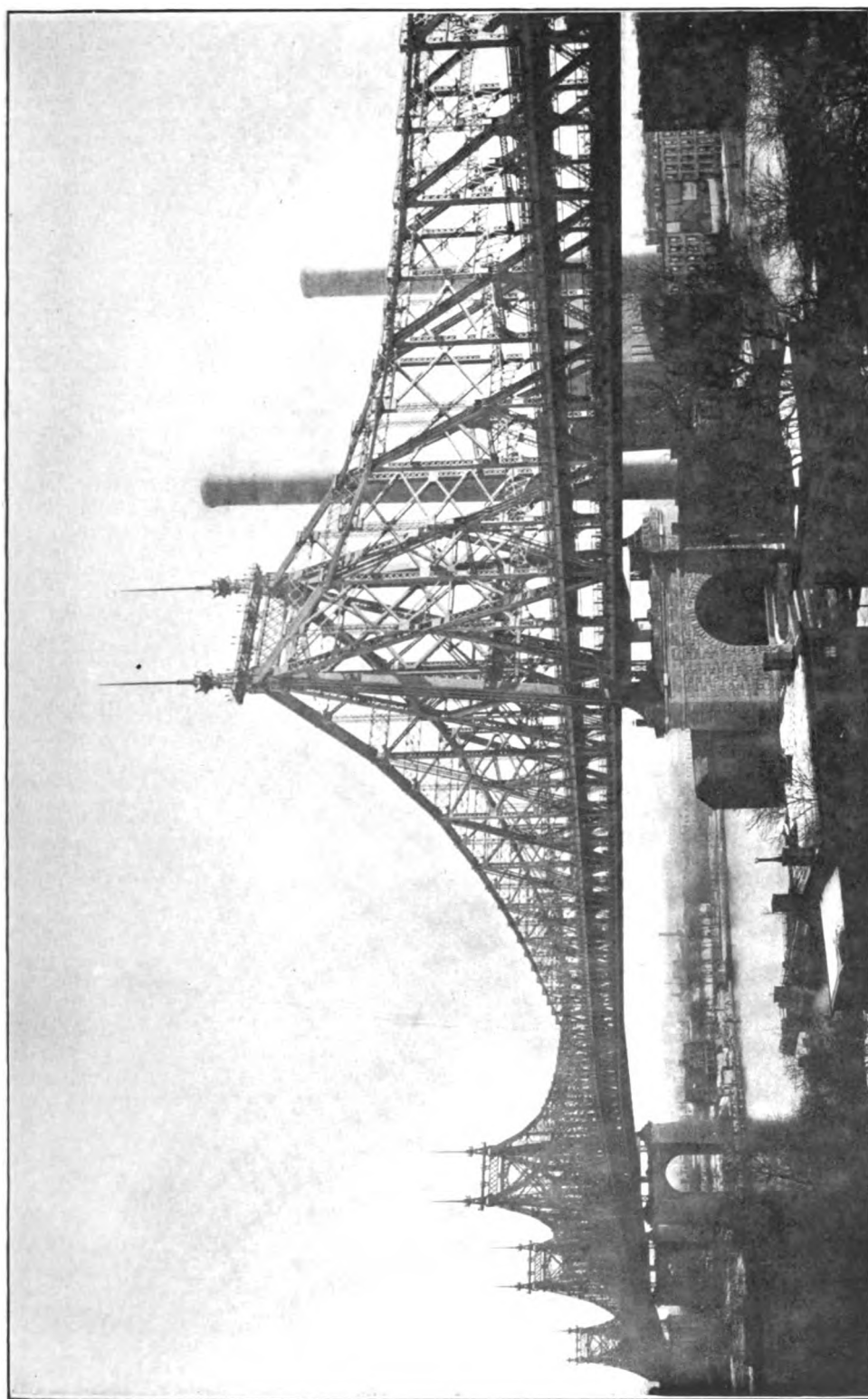
The northerly bridge is considerably heavier, being designed to carry four railway tracks, two trolley lines, two roadways, and two sidewalks on the same deck, and will occupy, when completed, the site of the present double bridge which it is intended to replace. As the old bridge must be kept in service till the new one is finished, the latter is constructed as three adjoining but independent trusses, seated on new piers which carry all three structures and which do not interfere with the old piers. The general arrangement is similar to the other. It consists of three spans, 390 feet, 550.2 feet, and 402 feet centre to centre, with masonry approaches, and small arches crossing the streets. The trusses in this are also arched, but the arches of the successive spans are independent, and are visibly separated by masonry towers surrounding the piers, whereas in the other they are riveted together end to end, so as to form a continuous structure, and lack the stone intermediate towers. The three parts have the following widths—: each of the two double track railway bridges is 26 feet in the clear between trusses, while the highway bridge is 36.5 feet, with a ten foot cantilevered sidewalk on

the free side, and an eight foot cantilevered walk on the other. Each is distinct in all its parts even to the end shoes, the piers alone being common to all.

PROPOSED HUDSON RIVER BRIDGE. The plan to span the Hudson River between New York City and the Jersey shore again received some attention in 1908, the proposition then put forward being for a bridge located at about 181st street, New York. For this site a 1,400 foot cantilever truss was suggested, to span the channel near the east shore where the river is deepest, with three 640 foot simple spans in the shallower part on the Jersey side.

QUEENSBORO BRIDGE. The erection of the superstructure of the Blackwells Island (the name of which was changed by a city ordinance to "Queensboro") Bridge, was completed June 15, 1908, so that the only remaining work consisted of some masonry to be laid at the main and anchor piers, which was finished by the end of the year. Due to articles in the daily press questioning the stability of the bridge, a commission was appointed by Mayor McClellan to examine the structure and report upon it. This commission consisted of Prof. Wm. H. Burr of Columbia University and Messrs. Boller and Hodge. Two separate investigations were involved, one by Professor Burr, who, with the forces of the Bridge Department of the City, recomputed the stresses in the structure, and the other by Messrs. Boller and Hodge, who undertook a similar but entirely independent examination.

Both reports discussed the design and construction of the bridge, and the conclusions reached were in substantial harmony. Professor Burr in his report said that "Computations for all the main truss members of the bridge show that the stress produced by the prescribed congested live load combined with the dead loads or with the dead load and wind loading are higher than prescribed as permissible in the specifications, and higher than prudent to permit, although practically not in excess of the limits approved by the Commission of Expert Engineers in 1903. The stresses disclosed by the stress sheet submitted with this report show that a controlled traffic on the four trolley lines of the lower deck and on two elevated railways of the upper deck carrying the heaviest cars of their classes now in use in the City of New York, together with a vehicular traffic on the roadway and two loaded sidewalks, may be permitted without exceeding the specified unit stresses for the regular live load and dead load, and without exceeding the safe limits of stresses for such a structure, provided the rearrangement of the floor of the lower deck and the removal of the two elevated railway tracks on the upper deck, together with the rearrangement of the sidewalk details be made as indicated in this report, so as to reduce the dead load by at least 1,172 lbs. per lin. ft. of each truss of the cantilever arms and 380 lbs. per lin. ft. of each truss of the island span and anchor arms. This rearrangement and reduction of dead load can now be made without material delay in the opening of the bridge for traffic. The capacity so afforded is satisfactory and sufficient for a considerable future period. Any further use of the upper deck for elevated railway or other purposes should be deferred until the development of traffic in the future may make it necessary, and until it shall be determined what character of traffic must then be accommodated, but that adjustment to the future



THE QUEENSBORO BRIDGE CONNECTING THE BOROUGH OF QUEENS AND MANHATTAN

View from the Manhattan Shore

traffic should not be such as to produce greater unit stresses than those approved in this report."

Messrs. Boller and Hodge reported that the structure, in their opinion, was perfectly safe if certain recommendations submitted with their report were carried out. These recommendations were as follows: (1) That the stringers of the two inside tracks on the upper decks, or other equivalent dead load, be removed to lighten the dead load. (2) That the trolley traffic be so regulated that if four tracks are in use the cars shall not run with clear intervals between them of less than their own length. (3) That the bridge be opened for the traffic of the sidewalks, highway, and four lines of trolley tracks as at present constructed, subject to the above recommendations. (4) That if any other moving loads be added to the structure, such further modifications of the dead load shall first be made as will keep the total direct stresses caused by the live and dead loads within the safe limits herein set."

The bridge and the reports referred to above attracted much attention from engineers during the year, and in view of the failure of the Quebec Bridge seemed to indicate that greater care must be taken in the design of large structures of this kind, not only to insure their absolute safety, but to prevent modification in designs once adopted and the criticism of plans by engineers.

MANHATTAN BRIDGE. The steel towers of the Manhattan Bridge, New York City, the material of which was fabricated by the Phoenix Bridge Company and erected by Terry & Tench, were completed in May, 1908. Each tower is composed of four columns of rectangular section, one leg being under each cable, braced together transversely to the axis of the bridge. The maximum intensity of pressure which they transmit through the pedestals to the pier is 64,000 lbs. per square foot, while the pedestals themselves, one under each column, weigh 191 tons apiece and 205 tons with the base plates attached. The construction of the footwalks was begun by swinging 1¾ inch cables between the towers on June 15. Sixteen of these, used in groups of fours, were needed upon which to erect the two footwalks, and from each of which latter the spinning of the four main cables will be done. The first crossing over the footwalks was made July 13. The main cables, which during the year were being spun, consist of 9,472 wires each of No. 6 Birmingham gauge, and the method employed was similar to that adopted on the Williamsburg structure. Like those of the Brooklyn Bridge the cables will have the roadway hung from them throughout the entire length, and will be required to carry a dead load of 25,000 lbs. per lineal foot in addition to the live load. The approach sites were cleared and the foundations for the approach viaducts were being completed.

BROOKLYN BRIDGE. The railroad floor of the Brooklyn Bridge was reinforced during the year by substituting steel eye beams for the wooden stringers formerly used. The shuttle train service over the bridge connecting with the Brooklyn Elevated lines, and hitherto substituted for through traffic during rush hours, was abandoned and the cable haulage system, in use for twenty-four years, was entirely removed, since the tail switching extension at the Manhattan end began operations on Jan. 26, 1908. Through trains, handling about half a million people

daily, were run to their destination over the different lines of the Brooklyn Elevated Railroad, thus avoiding change of cars at the Brooklyn end, while the local traffic was carried by the trolley cars on the roadway during rush hours; six car trains are operated under a sixty second headway.

WILLIAMSBURG BRIDGE. The Williamsburg bridge was being strengthened in the supports of the stiffening trusses, to permit of subway cars being operated over it, and in addition to this an underground trolley loop was opened at the Manhattan end on May 19th. Cars were run from Manhattan and Brooklyn on separate tracks, the former turning on the Brooklyn side and the latter on the Manhattan side, thus reducing the interchange of passengers at the ends of the bridge. The Manhattan loop was to serve later as a terminal for a connecting subway between the Manhattan ends of the Brooklyn and Williamsburg Bridges, operating Brooklyn Elevated Railroad trains.

CONCRETE ARCH BRIDGE. The largest concrete arch bridge in the world is to be built at Columbus, Ohio, to carry Detroit Avenue across Rockery River. It will be about 708 feet long, with a central arch of 280 feet span, and will have a 40 foot roadway and two 8 foot sidewalks.

FAILURE OF SUSQUEHANNA BRIDGE. The most northerly span of the new Baltimore & Ohio Railroad bridge over the Susquehanna River, while under construction, failed on Sept. 23, 1908, under a train load of coal gondola cars. The entire framework of the structure, including a timber and steel false work, a partially erected truss, the old floor system, and a 300 ton traveller, was precipitated into the river. The bridge, which was a double track structure, composed of plate girders, deck and through trusses, was located about one mile above Havre-de-Grace, Md., on the river, and was intended to replace the older one built in 1884-5.

REPORT ON THE QUEBEC BRIDGE FAILURE. The report of the commission appointed by the Canadian government to investigate the cause of the failure of the Quebec Bridge was made public in the early part of 1908. A new commission was named during the year, at the suggestion of the Dominion Department of Railways and Canals, to report upon the questions of location, design, etc., for a bridge to replace the old one. This is composed of Mr. Maurice Fitzmaurice of London, Mr. Ralph Mojeski of Chicago, and Mr. H. E. Vantelet of Montreal. Should a new structure be authorized, it will be undertaken as a government enterprise.

BASCULE BRIDGE. The new bascule draw bridge of the Chicago Northwestern Railroad, the first of two similar structures to be completed, and crossing the north branch of the Chicago River at the Wells Street terminus, Chicago, was the longest, largest, and heaviest single leaf, double-track bridge in the world at the time of its erection. It is of the Strauss trunnion type, has a span of 170 feet, and a clear span of 140 feet, an overhead counter weight weighing 1200 tons, and was designed to accommodate 260 trains daily, and be opened 1000 times a month for river traffic. It was to replace the old double track centre pier swing bridge, is operated by two 50 H.P. motors and can be swung in one minute.

THE VISTULA BRIDGE. The large double track railway bridge over the Vistula River, in West

Prussia, Germany, begun in 1905, was nearing completion. At the point where it crosses, the river is 5,000 feet wide, but to shorten the distance one of the levees was moved 1525 feet. The structure consists of ten spans, five of which have parallel chords and are 256 feet centre to centre end supports, while the other five have broken upper chords and are 426½ feet. The clear width of roadway is 37 feet part of which is used as a highway and part for two railway tracks. Thirteen thousand tons of steel will be used in the structure and it will cost \$2,000,000.

BRITISH ACADEMY. A learned society, incorporated by Royal charter in 1902. The official title is the British Academy for the Promotion of Historical, Philosophical, and Philological Studies. In 1908 there were 94 ordinary Fellows; the maximum number is 100. These are distributed in four main sections or committees: History and Archaeology, Chairman, Lord Reay; Philology, Chairman, S. H. Butcher; Philosophy, Chairman, Professor James Ward; Jurisprudence and Economics, Chairman, Sir W. R. Anson; President of the Society in 1908, Sir E. Maunde Thompson, K. C. B.; Secretary, Professor I. Gollancz.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. See ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, BRITISH.

BRITISH CENTRAL AFRICA PROTECTORATE. See NYASSALAND.

BRITISH COLUMBIA. A province of Canada. Area, 312,630 square miles. Population in 1901, 178,657, including 28,949 Indians and half-breeds, and 19,482 Chinese and Japanese. Victoria, the capital, had 20,816 inhabitants in 1901. For details respecting population, education, production, commerce, etc. See CANADA. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada and acting through an executive Council or responsible Ministry. The unicameral Legislative Assembly consists of 42 members. The present Lieutenant-Governor is James Dunsmuir, appointed May 11, 1906. The Premier is Richard McBride.

HISTORY. The disturbance over the immigration of Orientals which had marked the year 1907 continued during the first part of 1908. The attitude of the government toward the Asiatics occasioned much discussion and was regarded by many as arbitrary and indefensible. In March a number of East Indians who had been sentenced to a year's imprisonment under the Natal Act were released by order of the Supreme Court on the ground that the Act was unconstitutional. On March 21 a mass meeting was held at Vancouver, and a resolution passed demanding the withdrawal of the immigrant clause of the Japanese Treaty, and the exclusion of the Japanese if they violated the Lemieux agreement. It was also resolved that a bill should be passed by the Legislature excluding East Indians, if the Imperial government did not prevent their immigration into Canada from India and the British possessions. The population manifested strong disapproval of the Canadian government's attitude toward the whole question of Asiatic immigration. (See CANADA.) The year was marked by a very serious calamity owing to forest fires in the Kootenay Valley. Six towns, including Fernie and neighboring towns, were destroyed by fire in

August, with a loss estimated at about \$20,000,000. The new town of Prince Rupert, the terminus of the Grand Trunk Pacific Railway, made rapid progress during the year, owing chiefly to the settlement of a dispute between the Province and the railway, by which the latter in August obtained 17,000 feet of water front, amply sufficient for terminal facilities. Building at once became active. The Province also agreed to assist financially in opening up the Revelstoke route for both winter and summer, thus facilitating the bringing in of supplies for the construction of the Grand Trunk Pacific Railway.

BRITISH EAST AFRICA PROTECTORATE. A British possession extending from Abyssinia and Italian Somaliland on the north to German East Africa on the south, and inland as far as Uganda. Area, 177,100 square miles. Population in 1905, 4,038,256, including 25,000 Asiatics and 2,000 Europeans and Eurasians. Nairobi, the capital of the Protectorate, has 13,500 inhabitants (600 Europeans and 3,100 East Indians). The chief port is Mombasa, 30,000 inhabitants (200 Europeans), connected with the mainland by a railway bridge 1,732 feet in length. Rust-resisting varieties of wheat have been introduced and have proved to be well adapted to the soil and climatic conditions of the uplands. The area under maize, which is cultivated by natives as well as settlers, has been greatly extended. Rice, barley, coffee, and tobacco have also been introduced. Rubber plantations have been started. Large areas, particularly on the coast and in the lake districts, are admirably adapted for the cultivation of cotton, and experiments with different varieties of cotton were being conducted in various districts. During the year ending Mar. 31, 1908, there were exported 79,856 pounds of cotton. Sheep, both native and imported, thrive well in the splendid grazing areas in the uplands. The indigenous breeds of sheep and cattle have been improved, and wool-bearing sheep have been introduced. There is green herbage during the greater part of the year, and the prospects for an extensive dairy industry are excellent. Pigs are numerous. Ostriches have been domesticated. Horses and mules have been imported. The chief imports are cotton goods, rice, grain and flour, liquors, and building materials. The chief exports are ivory, copra, rubber, wax, hides, and skins. In 1907-08 the imports were valued at £799,117 and the exports at £515,052, against £765,407 and £440,705 respectively in 1906-07. The Uganda Railway, 584 miles long, from Mombasa to Port Florence, on the northeast corner of Lake Victoria Nyanza, is owned and worked by the Protectorate. Steamers on the lake are operated in connection with the railway. The length of telegraph lines is over 1,000 miles. The administration was placed in 1907 in the hands of a Governor. The revenue and expenditure for 1907-08 were estimated at £547,392 and £781,569 respectively, and the Imperial grant-in-aid at £153,000. The military force consists of 1,100 officers and men. The Governor in 1908 was Sir J. Hayes Sadler.

HISTORY. In Feb., 1908, a punitive expedition was led against the Kisii, who had risen against the authorities and committed murders and other atrocities. About 160 of the native insurgents were killed and wounded and many of their cattle were taken. The British losses were

slight. On Feb. 6, the tribesmen surrendered. In March there were public demonstrations of the discontent of the white settlers, and the new land bill was severely criticised. Towards the end of the year the criticisms directed against the Protectorate government culminated in England in a demand for the complete reorganization of the Colony. European officials had been charged with odious conduct in regard to native women, and native discontent was greatly stirred thereby.

BRITISH GUIANA. A colony of Great Britain, on the northeast coast of South America. Area, about 90,277 square miles. The last census, taken in 1891, showed a population of 278,328, consisting of 115,588 negroes, 105,463 East Indians, 3,714 Chinese, 7,463 aborigines, 29,629 mixed, and 16,724 Europeans. In 1906 the population was estimated at 300,131. Georgetown, the capital, had 53,176 inhabitants in 1891. In 1906-7 there arrived 2,257 Indian coolies, while 1,410 left. In the same year there were 220 government-aided schools, with 29,407 pupils. There are 45 sugar estates, comprising 72,390 acres. The sugar output in 1907-8 was 98,000 tons; for 1908-9 it was estimated at 100,000 tons. The output of gold has been declining; in 1906-7 it was 86,125 ounces. The export of diamonds in the same year was 4,113 carats, valued at £6,797. The imports and exports in 1906-7 were valued at £1,690,804 and £1,843,107 respectively. The principal imports in 1906-7 were: Flour, £154,467; textile fabrics, £262,094; machinery, £72,594; manures, £143,064; fish, £71,259; hardware, cutlery, and tools, £78,151; pickled beef and pork, £60,735. The principal domestic exports in 1906-7 were: Sugar, £1,059,503; rum, £108,460; balata, £50,106; gold, £313,222. Imports to and exports from Great Britain in 1906-7 were valued at £921,684 and £802,163 respectively; British colonies, £170,663 and £517,482. There were over 94 miles of railway and 560 miles of telegraphs and cables. The colony is administered by a Governor, assisted by an executive council, a legislative council or Court of Policy, which is partly representative, and a Combined Court, which deals exclusively with financial matters. The suffrage for the elective members of the Court of Policy and Combined Court is restricted. The Governor in 1908 was Sir F. M. Hodgson. The revenue and expenditure in 1906-7 were £535,745 and £514,053 respectively. The public debt stood on March 31, 1907, at £907,720. In September the Legislature revised the tariff, admitting into it the principle of preferential treatment for Great Britain and other parts of the British Empire.

BRITISH HONDURAS. A British Crown colony in Central America. Area, 7,562 square miles. Population (1901), 37,479; estimated in 1907 at 42,406. Belize, the capital, had 9,113 inhabitants in 1901. The principal products are mahogany, cedar, rubber, bananas, plantains, pineapples, oranges, mangoes, and coconuts. Sugar and cacao have been started. The higher parts afford good pasturage for cattle. With the increasing area that was being cleared for fruit-growing, labor was becoming scarce, and the planters appealed to the home government to permit the importation of coolies from India. In 1907 the imports amounted to \$2,415,723 (\$86,149 bullion and specie), and the exports, \$2,211,036 (\$143,344 bullion and specie). The United States supplies the greater portion of foodstuff

imports, as well as a large portion of articles formerly obtained from Great Britain, such as clothing, cotton goods, drugs, etc. Owing to the backward condition of farming and stock raising, American exporters also supply products that can be raised in the colony, such as corn, rice, vegetables, tobacco, etc. The principal exports are cedar, logwood, mahogany, bananas, and coconuts. The trade with the principal countries of origin and destination in 1907 was as follows:

From and to	Imports.	Exports.
United States	\$1,360,917	\$1,146,808
Great Britain	665,009	454,102
Mexico	191,581	221,130
Honduras	61,688	334,991

There is a railway of 60 miles along the east coast, and one of 15 miles along the west coast. The length of telegraph lines is 97 miles. The colony is administered by a Governor—in 1908, Gen. E. J. E. Swayne—assisted by an executive and a legislative council. The revenue in the fiscal year 1907-8 was \$395,183; the expenditure, \$516,700; and the public debt, \$168,815.

BRITISH INDIA. See INDIA, BRITISH.

BRITISH KOWLOON. See HONG KONG.

BRITISH NEW GUINEA. See PAPUA.

BRITISH NORTH BORNEO. A British protectorate, occupying the northern part of the Island of Borneo. Area, 31,106 square miles. Population, 160,000, including aborigines and Mohammedan and Chinese settlers. Sandakan, the capital, has 6,000 inhabitants. Jesselton is the principal town on the west coast. Over 1,000,000 acres have been alienated by the government for the cultivation of tobacco, tapioca, sago, rubber, coconuts, and coffee. Coal, iron, gold, mineral oil, and considerable deposits of manganese have been found. The first cargo of manganese was shipped in 1907. The imports in 1907 amounted to \$2,921,100; the exports, \$4,332,913 (tobacco, \$2,459,122). The pepper export in 1907 was 329 piculs (133½ lbs. each), against 273 in 1906 and 119 in 1905. Rubber is cultivated. The laborers are largely indentured Chinese, Japanese, and Javanese. There is a railway of 130 miles. In 1908 the government of the Moro Province in the Philippine Islands established a regular service between ports of the Moro Province, Philippines, and Sandakan. The protectorate is the possession of the British North Borneo Company. It is administered by a Governor in Borneo, whose appointment is subject to the approval of the Secretary for the Colonies, and a Court of Directors in London. The laws are based on the Indian code, and there is a court for the administration of Mohammedan law. The revenue and expenditure (exclusive of capital expenditure on railways and telegraphs) in 1907 were \$1,139,554 and \$683,326 respectively. There is a military force of 650 natives under European officers. In 1908 the Governor was E. P. Gueritz.

BRITISH SOMALILAND. A British protectorate in East Africa, on the Gulf of Aden. Area, estimated at 68,000 square miles. Population, estimated in 1906 at 300,029. Principal ports, Berbera, Bulhar, and Zeila, the capital. The inhabitants are Mohammedan, and entirely nomadic, except on the coast. Transport is by camels. The imports and exports in 1907-8

amounted to £233,238 and £215,708 respectively. The protectorate is administered by a Commissioner—in 1908, Capt. H. E. S. Cordeaux—and the three main ports are under the supervision of British officials. The revenue and expenditures for 1907-8 were estimated at £35,422 and £108,170 respectively; the grant-in-aid was fixed at £37,000. On March 19, 1907, an agreement was concluded for the regulation of Anglo-Italian relations in Somaliland.

BRITISH SOUTH AFRICA. A group of British possessions, including Cape Colony, Natal, The Transvaal, Swaziland, Orange River Colony, Southern Rhodesia, Bechuanaland Protectorate, and Basutoland. For details concerning the population, production, commerce, etc., of the various colonies and protectorates see under the respective titles. The total area is estimated at over 914,000 square miles. In 1904 there were 1,135,016 white inhabitants and 5,198,175 colored. In 1907 the total population was estimated at 6,724,480. In 1903 the South African Customs Union was formed. Most of the existing duties were increased and a preferential tariff, amounting to 20 per cent. *ad valorem*, was granted to products of the United Kingdom, and of such British colonies and possessions as shall grant reciprocal privileges to the products of British South Africa. Each colony or territory receives the customs duties collected on goods entered for consumption therein. In 1907 the total imports and exports (domestic produce) were valued at \$126,033,756 and \$231,631,993 respectively, against \$145,317,067 and \$206,324,678 in 1906. The distribution of imports and exports in 1907 by classes, was as follows:

Classes.	Imports.	Exports.
Animals	\$548,692	\$219,939
Articles of food and drink	33,003,413	1,546,334
Raw materials	11,239,581	42,368,820
Manufactures, other than food and drink	81,242,070	210,055
Gold		143,617,525
Diamonds		43,669,320
Exports of other than S. African produce ..		3,097,015

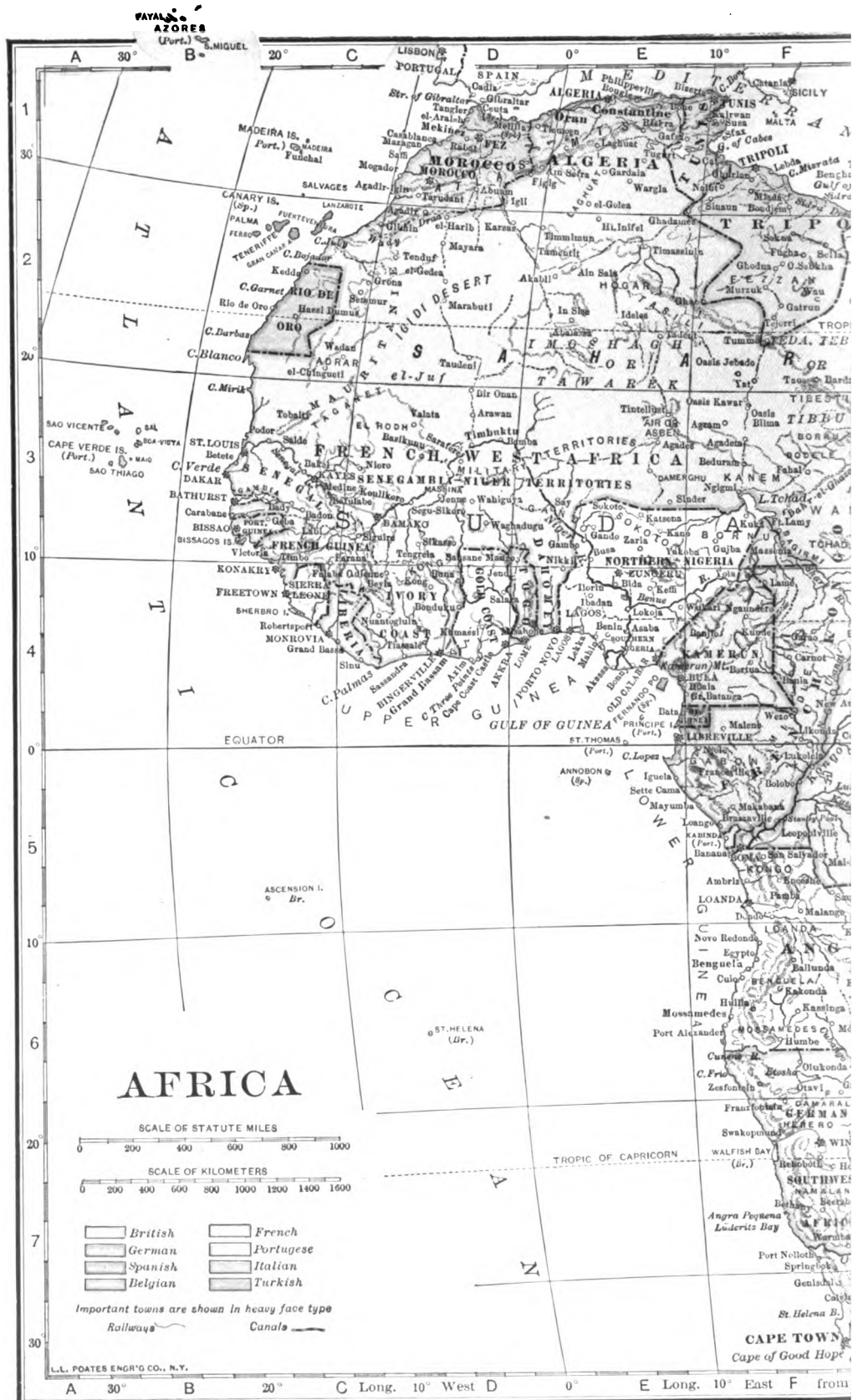
The principal imports in 1907 were: Apparel, \$7,708,153; wheat, \$4,067,229; wheat flour, \$3,016,214; drugs and chemicals, \$3,211,046; haberdashery, \$6,655,200; hardware and cutlery, \$5,398,720; iron and steel, \$4,235,143; leather manufactures, \$4,937,564; machinery, other than agricultural, \$8,719,665; sugar and sugar products, \$3,078,171. The principal exports in 1907 were: Coal, etc., \$2,876,745; diamonds, \$43,669,320; feathers, \$8,829,311; gold, \$144,184,383; hair, \$4,700,022; hides and skins, \$4,615,036; copper ores, \$3,272,575. The distribution of the trade in 1907 was as follows:

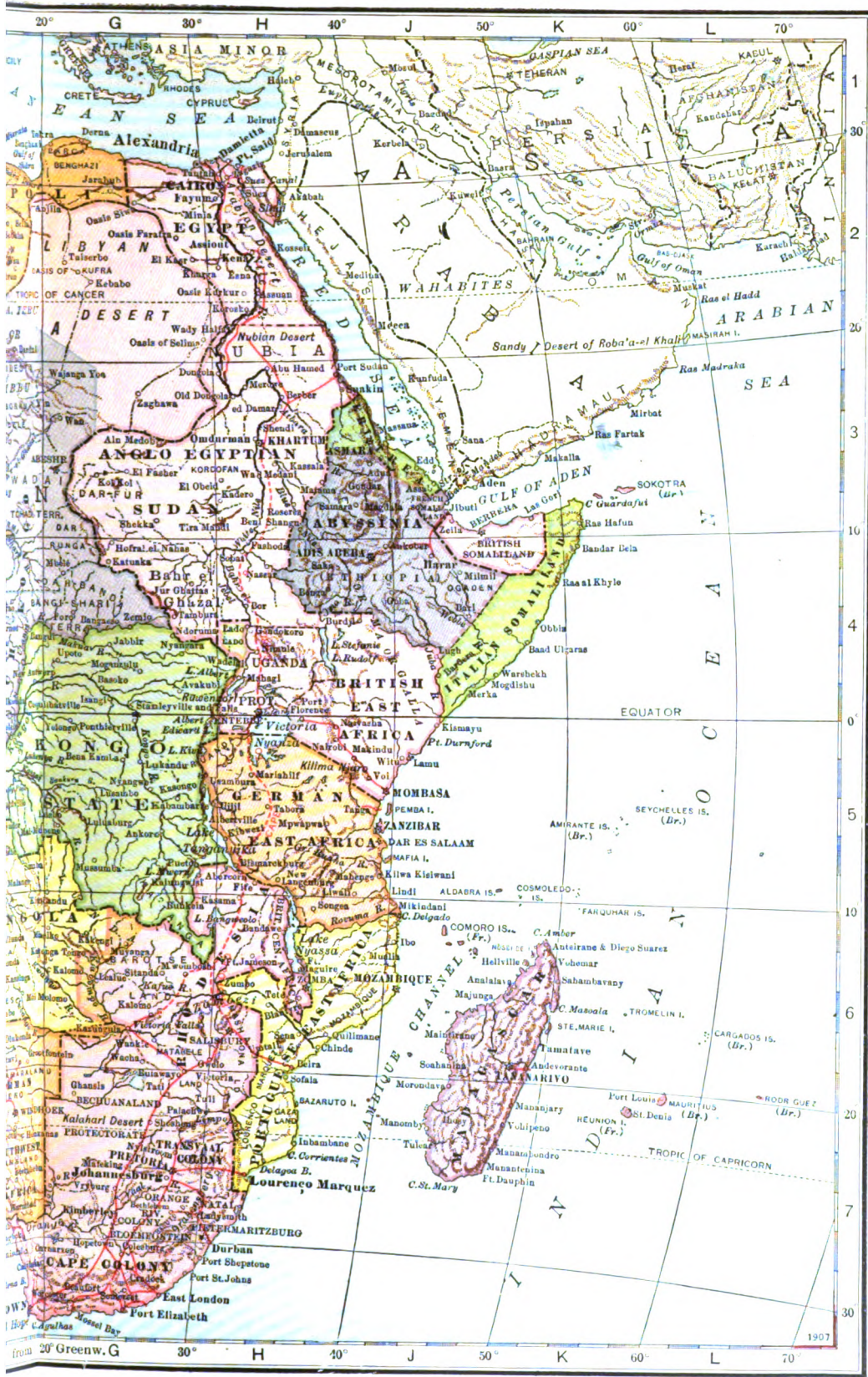
From and to	Imports.	Exports.
Great Britain	\$71,892,517	\$219,564,567
Australia	9,400,453	71,978
British India	3,875,721	83,682
Mauritius	1,847,061	74,397
Canada ..	1,927,594	3,733
Total British Empire	90,120,082	219,852,392
Argentina	2,240,195	12,254
Belgium	1,405,026	2,001,509
Brazil	1,457,381	
France	2,183,094	335,868
Germany	9,624,281	5,560,259
Sweden	1,525,987	511
Netherlands	1,740,432	68,518
United States	9,878,068	432,427

In 1907 \$19,643,700 of imports and \$2,467,881 of exports passed through the Portuguese ports of Lourenço Marquez and Beira. The principal British South African ports, with their imports and exports respectively in 1907, are: Cape Town, \$25,272,254 and \$184,907,340; Port Elizabeth, \$20,224,100 and \$15,333,314; East London, \$14,967,098 and \$7,086,081; Durban, \$34,166,609 and \$14,581,998.

The High Commissioner for South Africa represents the Crown in all matters occurring in South Africa beyond the limits of the colonies. He has the power to invite conferences of the representatives of the colonial governments for the discussion of affairs of common interests. Besides being Governor of the Transvaal Colony, he also supervises the administration in Basutoland, Bechuanaland, Swaziland, Southern Rhodesia, and Northwestern Rhodesia (Barotseland). The High Commissioner in 1908 was the Earl of Selborne, who was appointed March 2, 1905. The British garrisons in 1908-9 numbered 16,450 officers and men.

HISTORY. The federation tendency, which had been in evidence for several years, continued to gain strength in South Africa during 1908. On May 4. there was assembled at Pretoria a conference of official representatives from Cape Colony, Natal, The Transvaal, Orange River Colony, and Rhodesia. This convention was nominally the fourth South African customs and railway conference, called to discuss and draw up a new customs convention and arrange as to inter-colonial railway rates. But it immediately developed into a movement for a closer union of the colonies, and discussion was directed to the larger issues involved. This conference adopted the following resolution: "The delegates of the self-governing colonies have adopted the principle of closer union and undertake to submit certain resolutions to their parliaments with reference thereto. They also undertake to recommend to their parliaments the appointment of delegates to a national convention for the purpose of forming a constitution." To carry out the objects of the conference, a convention was proposed of 12 delegates from Cape Colony, 8 from the Transvaal, 5 from Natal, 5 from Orange River Colony, and 2 from Rhodesia, which was to draft a federal constitution for ratification by the colonies. The plan was approved in resolutions adopted on June 22 by the Cape Colony House of Assembly, on June 23 by the Transvaal Assembly, on June 24 by the Orange River Assembly and on July 1 by the Natal Assembly, and the delegates to the proposed national convention were duly appointed. Some dissatisfaction was manifested with the disproportionate representation of the predominant parties in the various legislatures which elected the delegates, due largely to the preponderance of the Boer element, and it was suggested that adequate provision should be made for minority representation. The chief opposition came from Natal, where the Boer preponderance was much less marked than in the other colonies. Events showed, however, that such fears of a desire on the part of the Boer element to shape the proposed union in their own interest were unjustified. Both in the convention and outside, the stand taken by men like General Botha or ex-President Steyn of the Orange Free State showed that they unreservedly accepted the results of the late war and that they were actuated by a sincere desire to pro-





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mote the welding together of the races into a single nation.

The strongest feeling for the union was manifested by the Transvaal and this was followed by the Orange River Colony. Cape Colony was also in favor of the federation, with certain provisions for protecting its representation. The convention met as scheduled, at Durban on Oct. 12, and messages were received from the King and from the Imperial government, expressing good wishes as to the movement. The convention was opened by Sir Matthew Nathan, Governor of Natal, and Sir Henry de Villiers, a delegate from Cape Colony, was president. The proceedings of the convention were secret, though there was some knowledge of the general trend of its discussions. It adjourned on Nov. 5 to meet again at Cape Town on the 23d. It was understood at the end of the year that the union had been unanimously agreed upon. Among the important questions discussed by the convention were those of language, representation, the status of the natives, and the site of the Federal capital. The Dutch, while recognizing the necessity of the use of English as the official language, were reluctant and determined not to give up their native tongue. The basis of representation provoked serious discussion. This was due to the fact that Cape Colony and Natal possessed over-represented country districts, and this was frankly defended by some of the delegates to the conference on the ground that the townspeople were more stable and consequently deserved over-representation. In addition, the franchise in the two colonies named is open to natives, while in the Transvaal and the Orange River Colony it is restricted to the white population. This made the establishment of a uniform Federal franchise particularly difficult, since the two Boer colonies were determined not to confer the vote on the colored races. Aside from the franchise, the native question is one of the most serious with which a federated South Africa will have to deal. The new Commonwealth will contain a population of about 1,150,000 whites as against more than 6,000,000 people of non-European descent, the odds thus being incomparably greater than was the case at the formation of the American Union, the Canadian Federation, or the Australian Commonwealth. For the site of the capital there was intense rivalry between Cape Town and Pretoria. The former had in its favor the greater historical prestige, a more favorable climate and the advantage of quicker communication with Europe. On the other hand Pretoria would be more convenient for the representatives of Natal and Orange River Colony as well as the Transvaal. Moreover, the Transvaal, as the richest, by far, of the colonies, maintained that it should receive due recognition. At the end of the year it was understood that this was the only question upon which the convention had not come to an agreement.

BROMFIELD, EDWARD THOMAS. An American Congregationalist clergyman, died on July 27, 1908. He was born at Coventry, England, in 1833, and was educated at New College, London. After a short career as a journalist and magazine contributor he obtained the pastorate of the Finsburg Park Congregational Church, London, where he remained for several years. In 1867 he went to Toronto, Canada, and in 1871 he moved to New York City. In addition to his pastoral work he wrote numerous articles for various periodicals, lectured

extensively, and was for ten years a secretary of the Presbyterian Board of Publication. He was for some time literary editor of the *North American Review*.

BROMURAL. A new nerve-sedative which is said to produce sleep without markedly affecting the circulation or respiration. It occurs as small white, almost tasteless needles, soluble in hot water, ether or alcohol, less readily in cold water. Its chemical name is alpha-monobromo-isovaleryl-urea and its formula is $C_6H_{11}N_2O_2Br$. The drug acts as a sedative and hypnotic in functional nervous diseases, but is not efficacious where pain, cough, angina pectoris, and excitement or delirium exist. The advantages claimed for bromural are the absence of depressing effects and prompt elimination, all action ceasing in from three to five hours.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES. An educational institution in Brooklyn, New York City, incorporated in 1824 as the Brooklyn Apprentices' Library Association, reincorporated in 1835 as the Brooklyn Institute, and again incorporated in 1890 under its present title. The total membership in January, 1909, was 8,200. The income for the year ending July 1st, 1908, was \$209,893.63. The endowment fund is \$400,000. The general educational work of the Institute is carried on in the Brooklyn Academy of Music. The central Institute Museum contains art and scientific collections, the property of the Institute. The city contributes for the maintenance of the Central Museum and the Children's Museum for the year 1909 \$103,905. The Biological Laboratory of the Institute, established at Cold Spring Harbor, L. I., in 1890, has the use of property valued at \$50,000. The total Institute attendance for the year ending June 1st, 1908, was 497,445.

BROOKS, WILLIAM KEITH. An American Zoologist, died on Nov. 11, 1908. He was born in Cleveland, Ohio, on Mar. 25, 1848, graduated at Williams College in 1870, and took his Ph.D. degree at Harvard in 1875. He was assistant in the Boston Society of Natural History in 1875-76, when he became associate professor, and thereafter (1883) was professor of zoology at Johns Hopkins University. Professor Brooks was a born naturalist, but an observer rather than an experimenter. While he was a student at Williams he accompanied an expedition to South America, and immediately after graduation, he became associated with Agassiz in the famous summer school experiment on Penikese Island, in Buzzard's Bay, Mass. In 1875 he had a part in the opening of a similar school at Cleveland, Ohio. Soon after his appointment to the faculty of Johns Hopkins, he induced certain citizens of Baltimore to subscribe a fund for the establishment of the Chesapeake Marine Laboratory, and he established summer schools in Chesapeake Bay at Chrisfield, at the old fort, off Old Point Comfort, and at Hampton, where he pursued and encouraged the study of marine biology. It was during these researches that Professor Brooks made the very important discovery that the eggs of the American oyster can be fertilized outside of its body. This led to the establishment of the Maryland Oyster Commission, and the development of the oyster industry in Chesapeake Bay. On this subject he lectured frequently, and wrote his popular

book, *The Oyster* (1891, 2d rev. ed., 1905). He was also chiefly responsible for the establishment of the marine station of the Bureau of Fisheries, at Beaufort, N. C. His contributions to the technical literature of marine life include his papers on the gastropods and amellibranchs (1875 and afterward); on the *Lingula*; on the development of the squid, on *Squilla* and other stomatopods, and a series of papers on the *Salpa* (stock-fish), followed by his important and exhaustive monograph on that subject, *A Monograph of the Genus Salpa* (1893). His other publications include: the article "Biology" in the *New International Encyclopædia*, *Hand-Book of Invertebrate Zoology* (1882); *Heredity* (1884); *The Development and Protection of the Oyster in Maryland* (1884), and *Foundations of Zoology* (1898).

BROTHERHOOD OF ANDREW AND PHILIP. See ANDREW AND PHILIP, BROTHERHOOD OF.

BROTHERHOOD OF ST. ANDREW. See SAINT ANDREW, BROTHERHOOD OF.

BROWN TAILED MOTH. See ENTOMOLOGY.

BROWNSVILLE INCIDENT. See UNITED STATES.

BROWN UNIVERSITY. An institution of higher learning at Providence, R. I., founded in 1764. The attendance in the autumn of 1908 was 993, the largest in the history of the institution. Of these 180 are in the Women's College. The University has a system of "coordinate" education, but not of coeducation, the Women's College being about ten minutes distant from the main campus. The foundations of the new John Hay Library were laid in September, and the structure will be two years in building. The old library will be used for department libraries and seminaries, of which there are now 17 scattered in various buildings. Five new fraternity chapter houses have been built during the last two years, and the university has taken measures to render the dormitories more attractive and so retain the students on the campus. The whole question of the relation of the university to the fraternity system is now under discussion. The director of physical training, a member of the faculty, has been made supervisor of athletics, and all managers of athletic teams are directly responsible to him. Three of the faculty have been absent on sabbatic years with half salary. Extension lectures for teachers are given in the late afternoon and evening, and the demand for such lectures is steadily maintained. The question of the relation of the academic to the engineering department of the university has been vigorously discussed during the year, and the fellows have appointed a special committee to investigate and report. The weight of opinion is against any separation of the two classes of students in undergraduate years, and in favor of a larger infusion of cultural study into the engineering courses. One hundred and ninety-six degrees were granted at the last commencement, and preparation was begun for the celebration of the 150th anniversary of the founding of the institution, to be celebrated in 1914. The total endowment of the university is now \$3,500,000. The president is Dr. W. H. P. Faunce.

BRUCE, SIR GEORGE BARCLAY. An English engineer, died on Aug. 25, 1908. He was born

at Newcastle-on-Tyne, on Oct. 1, 1821, studied engineering in that city, and subsequently was engineer-in-chief of the Royal Border Bridge, over the Tyne, for the York, Newcastle & Berwick Railway. Thereafter he was employed chiefly in India, where he was one of the pioneer railroad builders, having a part in the construction of lines in Bengal and Madras. He was president of the Institution of Civil Engineers in 1887-88.

BRUNEL. A native state on the west coast of the island of Borneo, lying southwest of British North Borneo (q. v.). In 1906 it became a British protectorate. Area, 8100 square miles; population, 25,000. Brunel, the chief town and residence of the Sultan, is built entirely over the water; population, 10,000. Some coal is mined, the Rajah of Sarawak (q. v.) having a monopoly of coal mining. Cutch and other jungle products are exported. A British resident supervises the general administration. A loan of \$200,000, made by the Federated Malay States, in 1906, was used partly for buying out some of the monopolists who had obtained the right to collect the revenues.

BRYAN, WILLIAM JAMES. United States Senator from Florida, died on Mar. 22, 1908. He was born in Orange County, Fla., on Oct. 10, 1876, graduated at Emory College in 1896, and in law at Washington and Lee University in 1899, and at once began to practise law in Jacksonville, Fla. From 1902 until just before his appointment (Dec. 25, 1907) to the United States Senate to succeed Stephen R. Mallory (who died on Dec. 23, 1907), Mr. Bryan was solicitor of the Duval County (Fla.) Criminal Court of Record. He was the youngest member of the Senate, and with two exceptions (Henry Clay, of Kentucky, who was 29, and Armisted T. Mason, of Virginia, who was 31, upon entering the upper House) the youngest man ever to sit in that body. Senator Bryan was a man of unusual ability and of great promise. He was a member of the Senate for only seventy days, and during thirty-three days of this interval he was ill of typhoid fever, of which he died.

BRYAN, WILLIAM JENNINGS. See PRESIDENTIAL CAMPAIGN.

BRYN MAWR COLLEGE, an institution for the higher education of women at Bryn Mawr, Pa., founded in 1885. The attendance in the autumn of 1908 was 420, of whom 72 were graduate students. The faculty and teaching staff number 55. In 1908 the gymnasium was rebuilt from funds raised by the present students. The course of study is arranged according to the graduate system. The library contains 55,000 volumes and 8,000 pamphlets. The productive funds of the college amounted in 1908 to \$1,128,494, and the income to \$80,709. The president is Miss M. Carey Thomas, Ph.D., LL.D.

BUCHANAN, WILLIAM INSCO. An American diplomat, special commissioner to Venezuela. He was born near Covington, Ohio, on Sept. 10, 1853; and was educated in the district schools. He assisted in the organization and management of the first four "corn palaces" at Sioux City, Ia., and was the Democratic member for Iowa on the World's Columbian Commission. He also served as chief of the Department of Agriculture and later as head of the Live Stock and Forestry Departments at the World's Fair.

From 1894 to 1900 he was envoy extraordinary and minister plenipotentiary to Argentina, with which country he succeeded in arranging a reciprocity treaty; and he also was the arbitrator selected by the Argentine and Chilean governments to fix the boundary line in the Puna de Atacama. In 1901 he was appointed director-general of the Pan-American Exposition, and the following year was United States delegate to the second Pan-American Conference at Mexico. In 1903 he was appointed first minister from the United States to Panama. He was special commissioner to Colombia to settle the questions which arose over the public debt of that country as a result of the separation of Panama, and in December, 1908, was sent as special commissioner to Venezuela to discuss with the new president, Gomez, the points at controversy between that country and the United States.

BUCKWHEAT. As reported by the United States Department of Agriculture the acreage of buckwheat in the United States in 1908 amounted to 803,000 acres, the production to 15,874,000 bushels, as compared with 800,000 acres and 14,290,000 bushels in 1907. The average yield per acre in 1908 was 19.8 bushels, and the average price per bushel on Dec. 1, 75.6 cents, which was the highest average price since 1883. The year's crop represented a total farm value on Dec. 1 amounting to \$12,004,000, which was the highest total value since 1869. The total production for 1908 was also the largest in 40 years. The principal buckwheat-growing States and their yields for the year 1908 are as follows: New York, 6,827,000 bushels; Pennsylvania, 4,992,000 bushels; Michigan, 742,000 bushels; Maine, 690,000 bushels; West Virginia, 378,000 bushels, and Virginia, 360,000 bushels. Of the 24 States reporting yields, these 6 produced nearly 14,000,000 bushels or about 93 per cent. of the total crop, while the combined yield of New York and Pennsylvania amounts to about 75 per cent. of the total crop for the year. The highest average yield per acre, 30 bushels, was secured in Maine and Delaware, and the lowest, 13.5 bushels, in Michigan.

BUILDING. See ARCHITECTURE.

BULGARIA. Formerly a principality, now a kingdom (see below, *History*) of the Balkan peninsula. Area, 37,199 square miles, including Eastern Rumelia, with 12,585 square miles; population (1905), 4,035,615, consisting of 3,204,996 Bulgarians, 497,818 Turks, 94,640 Gypsies, 83,942 Roumanians, 69,757 Greeks, 36,455 Spanish Jews, 5,021 Germans, 3,270 Russians, and 39,707 of other nationalities. According to religions there were in 1905 3,346,773 Greek-Orthodox, 603,113 Mohammedans, 37,653 Jews, 29,442 Roman Catholics, 12,694 Armenian-Gregorians, 5,402 Protestants, and 538 various. In 1906 there were 37,779 marriages, 180,074 births, and 90,940 deaths. The principal cities in 1905 were: Sofia, the capital, 82,621; Philippopolis, formerly capital of Eastern Rumelia, 45,707; Varna, 37,417; Rustchuk, 33,632; Slivno, 25,027; Shumla, 22,275; Plevna, 21,145; Stara-Zagora, 20,788.

EDUCATION. Public instruction is free, except for the well-to-do, and nominally obligatory from 8 to 12 years of age. The State contributes two-thirds to the maintenance of elementary schools and one-half to that of higher schools. In 1905-6 there were 4,584 elementary schools,

with 8,785 teachers and 400,216 pupils (148,343 girls); 199 lower middle-class schools, 16 gymnasias, 85 special and technical schools, and 85 other schools, with a total of 2,145 teachers and 44,041 pupils (16,723 girls). The national university at Sofia, with faculties of history and philology, physics and mathematics, and law, had about 1,000 students.

PRODUCTION. In theory the State is the owner of the land. The landholder has a perpetual lease descending to heirs, and pays one-tenth of the produce as rent, largely in kind. The communes hold pasture and woodland in perpetuity, paying no rent. The commune members have pasture and wood-cutting rights over these lands. Agricultural methods are in a transition state. On one farm operations may be conducted with primitive implements, while on an adjoining farm the most modern appliances may be in use. The area under cultivation is increasing, agriculture is displacing cattle-raising, and State lands are being alienated. The area and production of the principal crops in 1907, and the estimates of them for 1908 are shown in the following table:

Crop.	1908, estimated.		1907.	
	Area.	Production.	Area.	Production.
	<i>Acres.</i>	<i>Bu. a</i>	<i>Acres.</i>	<i>Bu. a</i>
Wheat	2,270,000	47,072,000	2,360,000	36,944,000
Rye	370,000	6,634,000	430,000	6,600,000
Barley	345,000	9,767,000	350,000	7,000,000
Maslin	180,000	3,607,000	220,000	2,483,000

a Bushels of weight; Wheat, 60 pounds; rye, 56 pounds; barley, 48 pounds; maslin, 58 pounds.

Other agricultural products are rice, cotton, silk cocoons, wine, tobacco, etc. In 1906 there were exported 1585 tons of tobacco and 462 tons of cocoons. In 1907 there was produced 546,253 bottles of attar of roses against 843,582 in 1906. In 1905 there were 2,167,275 cattle, 536,616 horses, 124,216 asses, 11,828 mules, 463,241 pigs, 1,370,201 goats, and 8,081,816 sheep. All minerals belong by law to the State. The government coal mines at Peruik yielded 161,000 tons in 1906. Concessions for coal-mining in the Balkans, near Trevna, were granted to private companies. Gold, silver, lead, copper, manganese, and large iron deposits are found, but await development. Near Burgas there are salt works. Native manufactures received a forward impulse during 1907, largely owing to the prohibitive nature of the specific tariff which came into force Jan. 14, 1906, combined with the law for encouraging domestic industry. Concessions for the monopoly of specified areas are granted to intending factory builders, free sites are offered, taxes are remitted, etc. In the silk industry a 2-leva bonus is paid for every kilogram of raw silk exported, for a period of five years from the date of the first consignment. A school of carpentry was opened by the Philippopolis Chamber of Commerce, and it was hoped gradually to extend it so as to include other trades. Artisans were beginning to adopt modern methods and implements. The new tariff was directly responsible for the establishment of the following new industries: Artificial flowers, walking sticks, umbrellas, brushes, straw hats, cardboard, etc., while the developments in bootmaking, copperwork, cooperage, carpen-

tering, dyeing, weaving, basket making, etc., are very marked.

FOREIGN COMMERCE. In 1907 the imports and exports amounted to 124,639,000 and 125,595,000 levas respectively, against 108,874,000 and 114,573,000 levas in 1906 (1 leva = 19.3 cents). The principal imports in 1907 were: Metals and manufactures thereof, 15,240,000 leva; textiles, 41,351,000; implements and machinery, 10,815,000; colonial goods, 6,082,000; drugs, chemicals, and dyes, 4,342,000; wood and manufactures thereof, 4,555,000; leather and its manufactures, 7,236,000. The principal exports in 1907 were: Live animals, 8,188,000; animal foods, 14,760,000; cereals, 83,306,000; attar of roses, 4,662,000; textiles and cocoons, 7,370,000; hides and skins, 3,289,000. The trade with the principal countries of origin and destination in 1907 was as follows, in levas:

From and to	Imports.	Exports.
Turkey	17,548,000	27,283,000
Austria-Hungary	34,688,000	8,023,000
Germany	19,660,000	17,022,000
France	6,593,000	6,990,000
Belgium	4,263,000	26,970,000
Great Britain	21,424,000	20,706,000
Italy	5,484,000	3,100,000
Russia	4,771,000	249,000

COMMUNICATIONS. In 1907 the Bulgarian ports were entered by 14,190 ships of 3,247,791 tons, and cleared by 14,198 ships of 3,258,420 tons. The merchant marine in 1907 consisted of 14 steamers, of 2,984 tons, and 85 sailing vessels, of 2,366 tons. The railways in operation in 1908 had a length of 999 miles, of which 802 belonged to the State, and 556 miles were in construction. In 1908 there were 5 lines under construction. In 1908 there were 5 lines under be completed by the end of the year; Devna to Dobritch, Radomir to Kustendil, Tirnovo to Stara Zagora, and Mezdra to Vidin—these four to be completed in 1910 and 1911. The Mezdra-Vidin line, which with its branches was to total about 150 miles, promised to be particularly important, as it will connect Sofia and Philippopolis with the Danube. The Tirnovo-Stara Zagora line will link North and South Bulgaria through the Balkans. The length of State telegraph lines in 1907 was 4,257 miles.

BANKS. In 1907 the Balkan Bank, an offshoot of the Vienna Bank Union, was established with branches at Rustchuk, Varna, and Philippopolis.

GOVERNMENT. Until Oct. 5, 1908, when it declared itself an independent kingdom, Bulgaria was an autonomous principality under Turkish suzerainty, the Prince being also Governor-General of Eastern Rumelia, which paid an annual tribute to Turkey, but was in all other respects an integral part of Bulgaria. The present King or Czar—formerly Prince—is Ferdinand, of the House of Saxe-Coburg and Gotha, born Feb. 26, 1861; elected Prince of Bulgaria July 7, 1887; assumed the government Aug. 14, 1887; proclaimed Czar of the Bulgarians Oct. 5, 1908. The kingdom is hereditary. The unicameral Sobranie, or National Assembly, consists of 189 members, elected by universal suffrage, one to every 20,000 inhabitants. The Sobranie is elected for five years, but may at any time be dissolved by the sovereign, when

new elections must take place within four months. Bills passed by the Sobranie require the assent of the King. The Grand Sobranie, elected in the same manner, but with double the number of members of the Sobranie, decides concerning acquisition or cession of territory, changes in the constitution, a vacancy on the throne, or the election of a regent.

FINANCE. The revenue and expenditures in 1906 were 134,440,302 and 115,658,812 leva, respectively. In the budget for 1908, the revenue and expenditure balanced at 127,235,700 leva. The principal estimates of revenue for 1908 were: Direct taxes, 41,380,000 leva; customs and excise, 41,890,000; railways, 15,050,000; and of expenditure: Public debt, 33,954,611; public instruction, 11,878,947; war, 30,050,000; public works, 16,469,503. The public debt stood on Jan. 1, 1908, at 470,761,770 leva, of which 444,519,868 was permanent. The tribute of Eastern Rumelia was 2,951,000 leva per annum.

ARMY AND NAVY. Military service is universal and compulsory between the ages of eighteen and forty-six years, with a period of continuous service in the infantry of two years and in the other arms of three years, and a reserve service in the infantry of eighteen years and in the other arms of sixteen years, the longest service in the world with a consequent large number of reservists. The regular army in time of peace consisted in 1908 of 36 regiments of infantry; 9 regiments field, 3 regiments mountain, and 3 regiments fortress artillery; in addition to engineers, depot and auxiliary troops, numbering 22,813 of all grades. Besides this there were 17,107 men of the supplementary reserve who are liable to four or six months' service, and of whom 9,720 were called to the colors. The total available force in the first line was therefore about 40,000 men. The field army when completely mobilized has a war strength of 375,000 combatants, organized into 9 army corps and 1 cavalry division, and can be mobilized in about ten days. A regiment of railway troops was organized in 1908. The army is of the most modern type in respect to organization, armament and training, and is a very large one for so small a state. The flotilla consists of an artillery-torpedo vessel of 720 tons, and 3 torpedo boats, 300 tons.

HISTORY.

INTERNAL AFFAIRS. On Mar. 11, 1907, the Prime Minister, M. Petkoff, was assassinated and was succeeded by Dr. Gudeff. On Jan. 21, 1908, the Gudeff Ministry resigned and a new ministry was chosen with M. Malinoff as Premier (Jan. 29), from the then dominant Democratic party. In the general elections of June 7th the Democratic party was completely victorious, winning 170 seats out of a total of 203; thus reducing the Opposition to 33, of whom 21 belonged to the newly formed political group, the Agriculturists. The new Sobranie was opened by Prince Ferdinand on June 28th.

BULGARIAN INDEPENDENCE. The great event of the year was Prince Ferdinand's declaration of Bulgarian independence at Tirnovo on Oct. 5th, 1908. The relations of this event to the general European situation are discussed in the article BALKAN QUESTION (q. v.); where also will be found an account of the difficulty arising between Bulgaria and Turkey over the latter's failure to invite the Bulgarian representative to a diplomatic dinner, and Bulgaria's

military occupation of the Oriental Railway, which belonged to Turkey. The declaration of independence was received in Bulgaria with popular enthusiasm. By the Treaty of San Stefano, concluding the Russo-Turkish War, the territory of Bulgaria was considerably enlarged, including a great part of what is now known as Macedonia, and having a frontage on the Aegean Sea; but the Powers gathered at the Congress of Berlin would not consent to so great a curtailment of Turkish territory, and by the Treaty of Berlin the three vilayets constituting the present Macedonia were cut off from Bulgaria and placed under Turkish administration. Bulgaria became an autonomous principality, tributary to Turkey and under a Christian prince to be selected by the people, subject to the approval of the Porte. Eastern Rumelia, which had been included in the territory of Bulgaria by the Treaty of San Stefano, became a province of Turkey to be ruled by a Christian Governor. Although it was provided by the treaty that Bulgaria should pay tribute to Turkey and also a share of the Ottoman national debt, these requirements were disregarded and became in fact a dead letter. After the revolutionary movement in Eastern Rumelia in 1885, that province was virtually annexed by Bulgaria, and the Powers paying no attention to Turkish protests, this status came to be gradually accepted, though it was definitely agreed that Eastern Rumelia should continue to pay tribute. Thus by the Treaty of Berlin, the territory temporarily united by the preceding Treaty of San Stefano to form Bulgaria fell apart into the three divisions of Bulgaria, a vassal state of Turkey, Eastern Rumelia, an autonomous province under Turkish control, and Macedonia, restored unconditionally to Turkey. The aim of Bulgaria has been directed toward restoring as far as possible the previous territorial status.

The acquisition of Eastern Rumelia was the first step toward the realization of the dream of a Greater Bulgaria; and it has always been the hope of Bulgarian statesmen that the Macedonian problem might somehow be solved in her favor, their chief ground being that the Bulgars were the predominant element in the Macedonian population. The Turkish revolution, by establishing a constitutional government, seemed for the time at least to remove the Macedonian difficulty. The months following the restoration of the Turkish constitution were marked by more pacific relations between the discordant Macedonian peoples than had existed in several years past. Hence the problem of Macedonia seemed to be in a fair way of settlement by other means than those which Bulgaria had hoped.

The declaration of independence, coming at this time, seemed to many to be intended as a blow to the new Turkish régime; for it was argued that for years Bulgaria had in fact been independent, and that she chose this moment for her declaration in order to embarrass the Young Turk party. It was criticised also as an act of treason to the neighboring Slav states. It was said that Bulgaria, having, in return for Austrian recognition of her independence, acknowledged the annexation of Bosnia and Herzegovina (which immediately followed) had taken a purely selfish course, disregarding the common Slav interests which required a united

front against Austrian encroachment, and specifically against Austrian endeavors to divide the Slav states. In Bulgaria the course of the government in not acting with Serbia and Montenegro was defended on the ground that Serbia had begun war on Bulgaria in 1885 when the latter's annexation of Eastern Rumelia was taken as a threat against the safety of the other Slav states in the Balkans. Nor did Serbia deserve Bulgarian aid in preventing the Austrian annexation of the provinces, for Serbia in 1882 had agreed with Austria to abandon her pretensions to Bosnia and Herzegovina, and for twenty years had done nothing to advance her own interests in those provinces. As to Turkey, the Bulgarian defense of their policy took the form of belittling the revolutionary movement. It was commonly declared that the revolution was sure to fail and that the Young Turks would be found stronger in words than in deeds. From the first, however, Bulgaria was ready to discuss the question of compensation to Turkey, and on receiving the advice of the Powers (Oct. 27th) that she should undertake negotiations to that end with Turkey, promptly despatched a delegation to the Porte and began negotiations whose results were not yet known at the close of the year. See BALKAN QUESTION.

The text of Ferdinand's declaration of independence at Tirnovo was as follows:

"By the will of our never-to-be-forgotten liberator and the great kindred Russian nation, aided by our good friends and neighbors, the subjects of the King of Rumania, and by the Bulgarian heroes, on Feb. 18th, 1878, chains of slavery were broken by which for so many centuries Bulgaria, once a great, glorious Power, was bound.

"From that time till today, for full thirty years, the Bulgarian nation, preserving the memory of those who had labored for its freedom and inspired by their tradition, has worked incessantly for the development of its beautiful country, and under my guidance and that of the departed Prince Alexander has made it a nation fit to take an equal place in the family of civilized peoples, and endowed with gifts of cultural and economic progress. While proceeding on this path, nothing should arrest the progress of Bulgaria, nothing should hinder her success. Such is the desire of the nation; such its will. Let that desire be fulfilled. The Bulgarian nation and its chief can have but one sentiment, one desire. Practically independent, the nation was impeded in its normal and pacific development by certain illusions and formal limitations which resulted in a coldness of relations between Turkey and Bulgaria. I and the nation desire to rejoice in the political development of Turkey. Turkey and Bulgaria, free and entirely independent of each other, may exist under conditions which will allow them to strengthen their friendly relations and to devote themselves to peaceable internal development.

"Inspired by the sacred purpose of satisfying national requirements, and fulfilling the national desire, I proclaim, with the blessing of the Almighty, Bulgaria, united since Sept. 6, 1885, as an independent kingdom.

"Together with the nation, I firmly believe that this act will meet with the approbation of the Great Powers."

BULLER, SIR REDVERS HENRY. A British soldier, died on June 2, 1908. He was born in Devonshire in 1839, and after attending Eton, entered the army as ensign in the King's Own Rifles in 1858. He served in the Chinese campaign in 1860, and in Canada in 1870 during the Red River rebellion. He was on General Wolseley's staff in the Ashanti War in 1874, and during the Zulu War of 1879 won distinguished honor as commander of the Frontier Light Horse. During the Boer War of 1881 he was chief-of-staff to Sir Evelyn Wood. He distinguished himself in the Egyptian and Sudan campaigns of 1882 and 1884-85, and as commander of a brigade at Tamoi in the latter campaign, he saved the day for the British. From 1887 to 1890 he was quartermaster-general with the rank of major-general. In 1890 he was appointed adjutant-general, and in 1891 reached the rank of lieutenant-general. At the beginning of the war in South Africa in 1899, he was made commander of the forces in Natal, and his first task was the relief of Ladysmith, which was accomplished only after severe fighting lasting several months in which the army under his command suffered several bloody repulses, and after the Boer Army had retired because of the surrender of Cronje to Lord Roberts. Ladysmith was relieved Mar. 1, 1900, and Buller was engaged in clearing Natal of the Boers until relieved of his command later in the year. He was severely criticised for his conduct of the campaign and his impatience under criticism and insubordinate comments on his superior officers after his return to England caused his resignation to be demanded in 1901.

BÜLOW, BERNHARD H. M., Prince von, German Chancellor. See GERMANY.

BUREAU OF AMERICAN ETHNOLOGY. See ANTHROPOLOGY.

BUREAU OF AMERICAN REPUBLICS. INTERNATIONAL. An official institution, supported by the American Republics and devoted to the encouragement of Pan-American commerce, friendship and peace. The Bureau was established in 1890 in accordance with resolutions passed at the first International Conference of American Republics, held in Washington in 1899-90. It was continued by resolutions of the second conference, held at Mexico in 1901, and again with enlarged scope and sphere by the third Conference at Rio de Janeiro in 1906. The purposes of the Bureau are to develop commerce and trade, and to promote better relations, closer acquaintance and more intimate association among the American Republics. It keeps in touch with the commercial affairs in both North and South America and uses its branches to promote trade. It keeps in touch, too, with men in public life, scientists, and travellers, providing them with a large variety of information which will increase their interest in the different American nations. The Bureau publishes numerous handbooks, pamphlets and maps. It is the office or agency, and also the custodian of the archives of the International American Conferences. It has charge of the correspondence relating thereto, the ratification of their resolutions, and the issuance of calls for new conferences.

The fiscal year ending June 30, 1908 was a period of great expansion and growth for the Bureau, due partly to the visits of Secretary Root to the countries of South America and

Mexico in 1906-7, and to the gift of Mr. Andrew Carnegie of \$750,000 for the erection of a new building for the Bureau in Washington. As a result of the efforts of the Bureau along commercial lines, a large number of great manufacturing and importing firms of the United States have entered the Latin-American field. The Bureau also has encouraged the study of Spanish in the universities, colleges and academies of the United States and of English in the corresponding schools of Latin-America, and it has provided students and specialists with a large amount of information concerning the history, literature, and the social and scientific life of these countries. It has published a series of handbooks descriptive of the various countries. These are to be revised as rapidly as occasion calls for. As a result of the efforts of the Bureau, interest was stimulated in the National Exhibition held at Rio de Janeiro during the summer of 1908, and as a result, travel from the United States to Brazil and South America was greatly increased. Attention was drawn to the National Exhibition to be held at Quito, Ecuador in 1909. Arrangements in the United States relating to the Pan-American Scientific Congress in Santiago in December, 1909, have been practically in charge of the International Bureau. The Bureau has directed its energies and influence toward the formation of Pan-American committees in each American Republic in accordance with the action of the third Pan-American Conference, held at Rio de Janeiro in 1906, with the result that the majority of the countries have named their respective committees.

The Bureau has under its care the Columbus Memorial Library which contains a large collection of books relating to the States of Central and South America. The construction of the new building of the Bureau was carried on during 1908, and it is the expectation that it will be ready for occupancy in November, 1909. The Director of the Bureau is John Barrett; and the Secretary, Francisco J. Yánes.

BUREAU OF ANIMAL INDUSTRY. See MEAT AND MEAT INSPECTION.

BURMA. See INDIA.

BURTON, THEODORE E. An American legislator, representative to Congress (Republican) from the Twenty-first Ohio District. He was born at Jefferson, Ohio, on Dec. 20, 1851, attended Iowa College and Oberlin College, graduating from the latter institution in 1872; and was admitted to the bar in 1875. He was elected representative to Congress in 1888 and was a member of each succeeding Congress, with the exception of the Fifty-second (1891-3), having been elected to his tenth term in 1908. As a representative, he won distinction for his efficient work in connection with the Committee on Rivers and Harbors, of which he was Chairman, and the Committee on Banking and Currency, to which subjects he had devoted much study. In 1907 at the solicitation of the Republican leaders, both National and State, he ran for mayor of Cleveland against Tom L. Johnson, but was defeated. After the election of a Republican State legislature in 1908 was assured, he announced himself as a candidate for United States Senator to succeed J. B. Foraker (q.v.). His principal opponent for the nomination was Charles P. Taft, a brother of the President-elect, and a bitter factional fight, which at one time threatened to disrupt the party in Ohio, was only averted

by the withdrawal in December, 1908, of both Mr. Taft and Senator Foraker. This action insured Mr. Burton's election. He is the author of *Financial Crises and Periods of Commercial Depression* (1902) and a *Biography of John Sherman* (1906). See OHIO.

BUSCH, WILHELM. A German caricaturist and rhymester, died on Jan. 9, 1908. He was born on April 15, 1832, in Wiedensahl, near Stadthagen, Hanover, the son of a merchant, and studied engineering in the Polytechnic Institute of Hanover, but turned to art and studied painting in the academies of Düsseldorf, Antwerp and Munich. The exactness required of the draughtsman was not to his liking, however, nor had he the painter's love of beauty. On the other hand, he had talent, originality and a broad sense of humor, and these qualities found expression in a series of satirical caricatures, which he began to supply to the *Fliegende Blätter* in 1859. Thereafter he wrote books of comic verse, illustrated by his own rough but singularly expressive drawings, which made him enormously popular throughout Germany. The best known of his works are *Max und Moritz*, translated by Robert C. Brooks: *Schnurrddibur; der heilige Antonius; Hans Huckelbein der Unglücksrabe; Die fromme Helene; Pater Filucius; and Plisch und Plum.*

BUSSEY INSTITUTION. See AGRICULTURAL EDUCATION.

BUTTER. See DAIRYING.

CAIRD, EDWARD. An English educator and philosopher, died Nov. 1, 1908. He was born in Greenock, Scotland, Mar. 20, 1835, and graduated at Oxford University in 1863, was Fellow at Merton College in 1864-66. He was appointed professor of moral philosophy at Glasgow University in 1866, and served until 1893, when he became master of Balliol College, Oxford. In 1901-02 he was Gifford lecturer on philosophy at Glasgow University. His writings include: *Social Philosophy and Religion of Comte* (1885); *The Critical Philosophy of Immanuel Kant* (1889); *Essays on Literature and Philosophy* (1892); and *The Evolution of Religion* (1893).

CALCIUM. See CHEMISTRY, INDUSTRIAL.

CALIFORNIA. One of the Pacific Coast States of the United States. Its area is 158,297 square miles, of which 2,205 miles are water. Its population in 1900 was 1,485,000. According to the Federal estimate of 1908 the population in that year was 1,702,377. By estimates of 1906 the population of the largest cities was as follows: San Francisco, 375,000; Los Angeles, 290,000; Oakland, 80,500; Sacramento 35,000.

MINERAL PRODUCTION. California has long been notable as one of the chief States in the production of gold. From the beginning of gold mining in 1848 to Jan., 1908, records compiled by the State Mining Bureau show that gold has been produced to the value of \$1,460,513,691. Although the yearly production has fallen off from the vast totals of the first fifteen or twenty years, it shows a remarkably even rate in the value of the gold produced. In the past ten years the banner year for production was 1905 when the value of the gold mined was \$19,197,043. In the two years succeeding, the production has shown some falling off. The value for the product of 1906 was \$18,732,452, while for 1907 it was \$16,727,928. In the production of gold California is outranked

only by Colorado. Silver was produced in 1907 to the value of \$751,646, as compared with \$817,830 in 1906. The production of copper in California has shown a steady increase in the last five years. The production in 1907 was 32,602,945 pounds, valued at \$6,341,387. The production in 1906 was 28,726,448 pounds, valued at \$5,532,712. In 1905, 16,997,489 pounds were produced with a value of \$2,650,605. The total production of copper for twenty-one years has been 291,739,742 pounds, with a value of \$44,034,008. Almost the entire quicksilver output of the country comes from California. In 1907 there were produced 17,431 flasks of 75 pounds each, valued at \$602,544. In 1906, 20,310 flasks were produced, valued at \$730,808. The decrease in hydraulic mining of gold and the decreased amount of gold and silver required by amalgamation process, together with the increased tendency to ship ores of the precious metals to smelters have tended to reduce the local demand for quicksilver. California ranks second among the States in the production of petroleum, being surpassed only by the Oklahoma-Kansas field, which took first rank in 1907. The production of the California field in 1907 was 39,748,375 barrels as against 33,098,598 barrels in 1906. In the value of the product California ranks sixth among the States. The oil produced in 1907 was valued at \$14,699,956. There has been great increase in the demand for crude oil for fuel purposes in the State during the last few years. During the year a new pipe line from the Midway District to Wade on the Southern Pacific, was completed by the Standard Oil Company. The price per barrel rose from 29 cents in 1906 to 37 cents in 1907. The production of mineral water in California in 1907 was 1,680,169 gallons, valued at \$460,972, an increase in quantity of 192,194 gallons, and a decrease in value of \$59,543 from the figures of 1906. California ranked fifth in 1907 as a salt producing State. Its output was 626,693 barrels or 87,737 short tons, valued at \$302,940. This is a decrease of 180,095 barrels or 25,213 short tons, as compared with the production in 1906. The value, however, increased \$11,412 over the value of 1906. The production of building and other stone is one of the most important industries of the State. In 1907, granite was produced to the value of \$1,326,324; trap rock, to the value of \$1,029,749; sandstone, \$437,738; marble, \$183,285; limestone, \$177,333, or a total value of all stone products of \$3,134,429. California ranks eighth among the States in the production of stone. A great proportion of the asphalt produced in the United States was derived from California. In 1907, 79,718 tons were produced, valued at \$1,058,400, as compared with 77,756 tons, valued at \$777,560 in 1906. California ranks eighth among the States in the production of clay products. There were produced in 1907, products of clay to the value of \$5,740,037, as compared with products to the value of \$4,364,230 in 1906. Precious stones are mined more extensively in this State than in any other State in the Union.

Mining conditions in California were somewhat improved during 1908 over 1907, and it was estimated that an important increase in output would be shown. In 1907 there was a decided falling off in the gold yield as compared with

the previous year. Twelve new dredges were installed for placer mining, and commenced operations in 1908. There were during the year seventy dredges operating in the gold fields of the State. The largest production of the silver output of the State is derived from copper smelting operations, though a considerable amount comes from quartz and placer mining. Smelters that were idle in 1907, became active in 1908, so that it is possible that a larger silver yield will result. This is true also of copper. The lead output may show a decided increase, but a diminished zinc yield is expected. Notwithstanding the drought which affected the quartz and placer mining of the State materially, the final figures of gold, silver, copper and lead production for California in 1908 are expected to show a general increase as compared with the total yield in 1907. The estimates of the Director of the Mint gives the California output of gold in 1908 as \$19,581,570, as compared with \$16,853,500 in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 1,600,000 bushels, valued at \$1,408,000, from 50,000 acres; winter wheat, 11,680,000 bushels, valued at \$11,914,000, from 800,000 acres; oats, 6,700,000 bushels, valued at \$4,489,000, from 200,000 acres; barley, 25,427,000 bushels, valued at \$18,816,000, from 1,082,000 acres; rye, 792,000 bushels, valued at \$697,000, from 66,000 acres; potatoes, 5,243,000 bushels, valued at \$4,037,000, from 49,000 acres; hay, 817,000 tons, valued at \$10,825,000, from 605,000 acres. As compared with 1907 there was a decrease in the production of corn which in that year was 1,836,000 bushels and in winter wheat, of which 20,520,000 bushels were produced. The barley also fell off in production, the crop in 1907 being 30,056,000 bushels. The rye crop also showed substantial decrease, the production in 1907 being 1,250,000 bushels. Hay also fell off in the amount produced, which in 1907 was 1,115,000 tons. The decrease in the wheat acreage has gone on almost continuously since 1900, the acreage in 1907 being considerably less than half the maximum acreage of 1893. The acreage in wheat in 1908 declined considerably from that of 1907, which was 1,368,000. In the production of barley the State ranked second in 1907. The production of citrus fruits has steadily increased in the last few years. The State ranks second in the production of beet sugar. The estimated product in 1908 was 91,400 long tons. The number of farm animals on Jan. 1, 1909, was as follows: Horses, 412,000; mules, 83,000; milch cows, 430,000; other cattle, 1,155,000; sheep, 2,325,000; swine, 562,000. In recent years there has been a decrease in the number of sheep in the State. The estimated value of the wool clip in 1908 was \$1,854,000.

MANUFACTURES. Between the census of 1900 and that of 1905 California made very considerable progress in manufacturing. The census of 1905 covered only those establishments classed as factories, but in these there was an increase in the average number of wage-earners employed from 77,224 in 1900 to 100,355 in 1905, and in the value of products from \$257,385,000 in 1900 to \$367,218,000 in 1905. This was an increase in the number of wage-earners of 30 per cent.,

and in value of products of 29.9 per cent. It is worthy of note that only 1583 of the wage-earners in 1905 were children under 16, and only 14,084 were women. In the canning and preserving of fruits and vegetables California far surpasses any other State. This industry rose from third rank among the State's industries in 1900 to first rank in 1905. In the latter year it reported 167 establishments, 7138 wage-earners, and products valued at \$23,809,988. The increase in the latter item in five years was 77 per cent. Of the total value of production in 1900, \$7,340,059 was credited to canned fruits and only \$2,911,520 to dried fruits; in 1905, however, the canned fruits were credited with only \$6,978,083 and the dried with \$13,800,601. The principal fruits canned were peaches, apricots, and pears; and those dried were raisins, prunes, peaches, and apricots. Other leading industries, with the value or products of each in 1905, and in parentheses the percentage of increase in value since 1900 were as follows: Flour and grist-mill products, \$20,202,542 (54.9 per cent.); lumber and timber products, \$18,275,891 (57.7 per cent.); slaughtering and meat packing, \$21,795,694 (38.7 per cent.); printing and publishing, \$17,400,953 (81 per cent.); planing mill products, \$13,903,483 (189 per cent.); railway shop work, \$9,836,332 (30 per cent.); tanned, curried and finished leather, \$8,072,257 (9 per cent.); cheese, butter and condensed milk, \$7,820,937 (118 per cent.); malt liquors, \$7,510,958 (48.5 per cent.); vinous liquors, \$6,688,620 (69 per cent.); tinsmithing, coppersmithing, and sheet-iron working, \$5,937,821 (12.5 per cent.); refining petroleum, \$5,748,598 (721 per cent.). San Francisco was credited with three-eighths of the total value of manufactured products in 1905, or \$137,788,233, and with an increase of 28.7 per cent. in the value of its product since 1900. At the same time Los Angeles was credited with 9.4 per cent. of the total value, or \$34,814,475, with an increase of 130 per cent. during the five years.

EDUCATION. The total number of school census children in the State at the close of the fiscal year ending June 30, 1908 was 457,048, a gain over the same period in 1907 of 22,443. There were enrolled in the primary, grammar, evening, kindergarten, and high schools of the State 347,193 pupils. There were in these schools 10,222 teachers, of whom 911 were men. The average length of school term in 1908 was 192 days in the high schools, and 171 days in the lower schools; the average expense for education in the high schools per pupil, was \$68.09, while in the elementary schools it was \$25.91. The total expenditure for public education during the year was \$14,422,704.87. This includes expenditures for kindergarten, evening schools, primary, grammar and high schools, but does not include expenditures for the State Polytechnic School, the reform schools, the normal schools, of which there are five, and the University of California. The valuation of schoolhouses, sites, libraries, etc., in 1908 was \$34,738,533. The public schools have in their libraries 1,959,983 volumes; each school district has a stated sum to expend for books each year. The high schools in the State have made great gains in the last few years, since the provision for State aid to each school, which in 1908 amounted to \$652.28 per school, and \$10.50 per pupil in average daily attendance, one-third of the money being apportioned to the school on the basis of its

being a school, and two-thirds on the average daily attendance.

FINANCE. The report of the State Treasurer showed a balance at the close of the fiscal year, ending June 30, 1907 of \$7,149,904.24. The receipts during the fiscal year, ended June 30, 1908 were \$15,514,801.47. The expenditures for the same period were \$15,359,659.75, leaving a balance on hand June 30, 1908 of \$7,305,045.96. The State trust funds on deposit in banks on June 30, 1908, amounted to \$3,668,150. The receipts from the county treasurers for the fiscal year 1908 were \$9,267,046.33. Of this \$4,368,579.12 was for the general fund; \$3,970,726.56 for the school fund; \$348,863.97 for the State University fund, and \$139,515.69 for the interest and sinking fund. The legislators at the session of 1907 passed an act permitting the deposit in banks of money belonging to the State. The amount of interest on deposits collected to June 30, 1908 was \$48,890.09. The amount of the deposits at the end of the year was \$4,257,350.

CHARITIES AND CORRECTIONS. The average population of the State institutions for the year ending June 30, 1908, was as follows: Asylum for the Insane at Stockton, 1849; at Napa, 1690; at Agnew, 718; at Ukiah, 780; at Patton, 996; Home for Feeble Minded Children at Eldridge, 655; Institution for the Deaf and Blind at Berkeley, 206; Home for Adult Blind at Oakland, 110; State Reform School at Whittier, 300; Preston School of Industry, at Lone, 292; Folsom State Prison, 1992; San Quentin State Prison, 1620. The county hospitals and almshouses had, on June 20, 1908, 1528 inmates, and the county jails had on the same date, 1384 inmates. There were admitted to the county hospitals during the year ending June 30, 1908, 17,494 persons, and there were admitted to the county jails during that year, 22,838 persons. The total cost of maintaining the State institutions for the fiscal year was \$1,929,758. Of this, \$1,042,229 was expended for the maintenance of the State insane hospitals.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in 1908, and no elections for State officers. The legislature of 1907 provided for submission to the vote of the people an amendment providing for a direct primary law. This amendment was adopted at the election of Nov. 3. The troubles between the Japanese and the natives in San Francisco which became acute in 1907, had so far subsided in 1908 as to become insignificant. There was a slight outbreak in Napa, in April, when a Japanese laundryman was assaulted by a mob of men and boys. The suit of the Japanese residents against the City and City Council of San Francisco to recover damages for mob violence on May 20, 1907, was settled on Mar. 26 by a compromise, by which judgment for the Japanese was found for \$450. In January, the California State Commission undertook an investigation of the Southern Pacific, the Santa Fe and the Salt Lake Route railroads to see if violations had been made of the law against rebating by railroads. A note of the visit of the fleet of the United States Navy on its Pacific cruise to California ports will be found in the paragraph *Navy*, in the article UNITED STATES.

SAN FRANCISCO. The prosecution against city officials and others for alleged corruption received a severe blow on Jan. 9, when the three Justices of the District Court of Appeals

handed down a decision setting aside the judgment of the lower court in the French restaurant case, on which Eugene F. Schmitz, the former mayor, was convicted on June 13, 1907, and sentenced to five years' imprisonment in the State penitentiary. Schmitz had been found guilty on evidence that he had shared in "fees" paid to Abraham Ruef by the proprietors of certain restaurants, in return for which they were permitted to carry on illegitimate business. Ruef had pleaded guilty to the charge of extorting these "fees" from restaurant keepers. According to the decision of the Appellate Court the compelling of the French restaurants to pay these "fees" by Ruef was not a crime according to the laws of the State, even though he shared them with Schmitz. The judges declared further that the indictment against Schmitz was invalid because it contained no allegation of a threat to injure property, and did not charge any threat to do unlawful injury. To threaten to hold up the license of these persons, or to do so actually, declared the court, was not an unlawful act. The court also criticised the conduct of the trial and commented adversely on rulings made by Judge Dunne, who presided. The effect of this decision was to invalidate the four remaining charges for extortion against Ruef and Schmitz, and to render void the confession of Ruef, as the facts which he confessed were decided not to be criminal.

There still remained against Schmitz about forty indictments for bribery, and against Ruef 126 indictments, charging the same crime. The prosecution appealed to the State Supreme Court against this decision, but this body on Mar. 9 refused to grant a rehearing and confirmed the decision of the Appellate Court that the offense charged was not a felony, in a legal sense. On Mar. 21 the remaining indictments for extortion pending against Schmitz were dismissed, and he was released on bail, awaiting trial on other charges. The trial of Ruef also failed on this technicality.

Following the decision of the Appellate Court noted above, Prosecuting Attorney Langdon, on Jan. 19, announced that Abraham Ruef would be put on trial on one of the charges of bribery pending against him. At the same time he made public a contract made with Ruef in May, 1907, by the terms of which the latter was to receive almost complete immunity from prosecution, in consideration of his giving evidence against each and every defendant brought to trial in the graft cases. This immunity did not apply to the Schmitz case, then on trial, in which it was agreed that Ruef was to plead guilty. Mr. Langdon asserted that Ruef did not live up to his agreement when Tirey L. Ford, counsel for the United Railways, was tried for and acquitted of bribery in Dec., 1907. In declaring this immunity void, the prosecution asserted that it was moved to take this action by Ruef's failure to keep his agreement, and by the absolute refusal of Judges Dunne and Lawlor to countenance any immunity.

On Mar. 26 three additional indictments were found against Ruef and also against Patrick Calhoun, president of the United Railways, and Tirey L. Ford, general counsel of the same corporation. Ford, who had been tried twice before, one trial resulting in a disagreement and one in an acquittal, was ac-

quitted on a third indictment on May 2. Other indictments were pending. Ruef was again placed on trial, this time on an indictment charging him with the bribery of Phillips, one of the former supervisors, in connection with the trolley franchise. This trial ended on May 21 with a disagreement by the jury, which held that Ruef and the supervisors were accomplices, and therefore the testimony of the latter against Ruef could not be accepted. On July 6, Ruef, who for six months had been held in the common jail, secured bail of \$1,500,000, and was set at liberty in spite of the efforts of the prosecution to prevent such action. Public sentiment in San Francisco, which at the beginning of the graft prosecutions in 1907, had been strongly in sympathy with the movement, for various reasons, became, during 1908, lukewarm, and in some instances, hostile. This was due in part to certain methods employed by the prosecutors to secure evidence, and in part to their attempts to fasten crime upon prominent business men of the city. The position of Rudolph Spreckels, under whose financial support the prosecution was undertaken and carried on, became increasingly difficult. On July 21, President Roosevelt sent him a letter which, in part, read as follows:

"Now and then you and Mr. Heney and the others who are associated with you must feel downhearted when you see men guilty of atrocious crimes who, for some cause or other, succeed in escaping punishment, and especially when you see men of wealth, of high business and, in a sense, of high social standing, banded together against you. My dear sir, I want you to feel that your experience is simply the experience of all of us who are engaged in this fight. There is no form of slander and wicked falsehood which will not as a matter of course be employed against all men engaged in such a struggle.

"Now, I do hope that you and your colleagues will treat all this bitterness with entire disregard. It is of small consequence to you or to any of us who are engaged in this work, whether men think well or ill of us personally; but it is of very great consequence that we should do the work without flinching, on the one hand, and on the other hand, without losing our good humor and common sense, without becoming angered and irritated to a degree that will in any way cause us to lose our heads.

"You have heart-breaking difficulties with which to contend. You have to fight not only the banded powers of evil, but, alas! that it should be said, the supineness and indifference of many good men whose zealous support you had a right to feel you could rely upon. Do not be discouraged; don't flinch. You are in a fight for plain decency—for the plain democracy of the people who believe in honesty and in fair dealing as between man and man. Do not become disheartened. Keep up the fight."

On August 19, Ruef was again held for trial. The case was the alleged bribery of Furey, a former supervisor, to vote for the granting of an overhead trolley franchise to the United Railways. On Oct. 29, E. A. S. Blake, who had been convicted of attempting to bribe a member of the jury, confessed in court that he carried an offer from one of Ruef's attorneys to pay \$1000 if the juror voted for acquittal. The juror told the district attorney, and as a result, Blake

was convicted. After his conviction he testified that the attorneys of Ruef offered him \$10,000 if he would keep silence. On Nov. 13, Francis J. Heney, who was prosecuting the case against Ruef, was shot, during a recess of the court, by one Morris Haas, a saloon keeper, whom Heney had rejected as a juror on account of his criminal record. The shot was not fatal, and Mr. Heney recovered within a few weeks. Haas committed suicide in jail, on Nov. 16, by shooting himself. As a result of the shooting of Heney, and the consequent arousing of public feeling, Ruef's bail was cancelled and he was again committed to jail. His trial was resumed on Nov. 16. The jury rendered a verdict of guilty on Dec. 10. On Dec. 29, Ruef was sentenced to fourteen years' imprisonment and steps were at once taken by his attorneys to appeal the case to higher courts. It was announced that the trial of Patrick Calhoun, the head of the United Railways, would begin on Jan. 5.

The rebuilding of the city was carried on on a large scale during 1908. The business edifices constructed are much larger than those which existed previous to the fire of 1906. The population lost at the time of the fire was practically regained by the end of 1908. For measures taken to stamp out the bubonic plague in the city, see PLAGUE.

The final accounts of the relief fund, contributed for the relief of the sufferers from the fire and earthquake of April, 1906, were published on Dec. 27. A total of \$9,000,000 was expended, and the balance of the funds on hand was \$397,267. This was turned over to the hospitals and charitable institutions of San Francisco. The relief corporation provided and assisted in providing for about 8,000 homes in San Francisco or shelter for 30,000 persons at a cost of \$1,900,000. Most of the structures built were of a permanent character. A home for the aged and infirm was built and presented to the State at a cost of \$374,567.

CONVENTIONS AND ELECTIONS. In the Republican State Convention, held on May 14, for the selection of delegates to the National Convention, the delegates at large were instructed to vote for W. H. Taft for president. The Democratic Convention for the same purpose was held on May 19, and the delegates were instructed for W. J. Bryan for president. In the election of Nov. 3, the vote was as follows: Taft, 214,398; Bryan, 127,492; Chafin, 11,770; Debs, 28,659.

STATE OFFICERS. Governor, Jas. N. Gillett; Lieutenant-Governor, Warren Porter; Secretary of State, C. F. Curry; Treasurer, W. R. Williams; Comptroller, A. B. Nye; Adjutant-General, J. B. Lauck; Attorney-General, V. S. Webb; Superintendent of Education, Ed. Hyatt; Commissioner of Insurance, E. Myron Wolfe; Commissioner of Lands, W. S. Kingsbury—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, W. H. Beatty; Associate Justices, H. Melvin, Lucien Shaw, F. M. Angellotti, Lucien Sloss, F. W. Henshaw, W. G. Lorigan; Clerk, F. L. Caughey—all Republicans.

The legislature of 1909 is composed of 30 Republicans and 10 Democrats in the Senate, and 60 Republicans, 18 Democrats and 18 Labor Unionists in the House. The representatives in Congress will be found in the article UNITED STATES, section Congress.

CALIFORNIA, UNIVERSITY OF. An institution of higher learning at Berkeley and San Francisco, Cal., founded in 1868. There

are 23 regents, six of them ex-officio State officers, the remainder appointed by the Governor and approved by the Senate. In addition to ten colleges at Berkeley, the University includes colleges of law, medicine, dentistry, and pharmacy, and an institute of art at San Francisco, the Marine Biological Laboratory at San Diego, and the Lick Observatory at Mount Hamilton. All of the colleges require for entrance high school graduation, except the Medical Department, which requires the previous completion of two years in college, and the course in law leading to the degree of J. D., which requires the previous completion of three years. The College of Agriculture includes the U. S. Agricultural experiment station, with sub-stations in various parts of the State and an elaborate system of bulletins and reports, and the University Farm at Davis, Yolo county. The University conducts also a summer session, a department of university extension, and issues seventeen series of departmental publications. The attendance in 1907-08 was 3,859. In Arts there were 1,453 students, two-thirds of them women. In Applied Science, 827; 324 graduate students; 177 in Commerce; 132 in Agriculture; 180 in Art. All of the other departments registered less than one hundred students. The endowment of the University was \$4,121,800 (June 30, 1908). The annual income was \$1,182,400, for the year ending June 30, 1908, of which 55.68 per cent. came from the State. No tuition is charged to students of California. Non-residents of California pay \$20 a year. The most notable buildings are the Hearst Memorial Mining Building, cost, \$644,000; California Hall, \$264,000, and the Doe Library, \$650,000, all built of white granite, in modern fireproof construction, and the Greek Theatre, the gift of Wm. Randolph Hearst, an open-air theatre, holding 8,000 persons; all building operations are in accordance with the Phœbe S. Hearst Plan, secured by an international architectural competition. All departments are open to women. Military drill is required of the men undergraduates in the freshman and sophomore classes. The library contains 225,000 volumes and 100,000 manuscripts. Benj. Ide Wheeler has been president since 1899.

CAMBODIA. A French protectorate in Indo-China. Area, about 37,400 square miles, exclusive of the cessions made by Siam in 1904 and 1907, embracing about 16,000 square miles (see FRENCH INDO-CHINA). The population was estimated in 1906 at 1,237,864, including 250,000 Chinese, 40,000 Malays, and a few hundred Europeans. Four-fifths of the population live in the riverine country. Pnom-Penh, the capital, has 46,000 inhabitants. The agricultural products include rice, maize, betel-nuts, sugar, coffee, tobacco, cinnamon, silk, etc. Cambodia is the principal centre of cotton production in Indo-China. Cotton is cultivated along the banks of the Mekong, and is of longer fibre than the East Indian variety. The whole production is exported. The industry is managed by Chinese, who make advances to the cultivators on their crops. There was one cotton-ginning mill, erected by a Frenchman, provided with American machinery, worked by a French engineer, and owned by a Chinaman. The product is shipped to Japan. The pepper production amounts to 1,700,000 pounds annually. The number of cattle is reported to be 350,000. The imports and exports, included in those of

French Indo-China, pass mainly through Saigon, Cochin-China. There is a French Superior Resident at the capital. King Lisowath ascended the throne in 1904. The local budget for 1908 balanced at 2,582,000 dollars (1 dollar = about 42½ cents).

CAMERUN. See KAMERUN.

CAMPAIGN, PRESIDENTIAL. See PRESIDENTIAL CAMPAIGN.

CAMPBELL, LEWIS. A Scotch Greek scholar and educator, died on Oct. 25, 1908. He was born in Edinburgh on Sept. 3, 1830, and was educated at Glasgow University, at Trinity College, Oxford, (where he was awarded a scholarship) and at Balliol. In 1855 he became a fellow at Queen's College, (Oxford), and he was a tutor there in 1856-58, when he became vicar of Milford, where he remained until 1863, in which year he was called to the chair of Greek at St. Andrews, where he taught until his retirement in 1892. An LL.D. of Glasgow and a D.Litt. of Oxford, Campbell was a combination of the old type of British scholarship—so wide were his interests—and of the new—so thoroughly was he master of Plato and Sophocles. With W. Garnett he wrote (2nd ed., 1884), a *Life of Clerk Maxwell*, the physicist. He edited Jowett's *Theological Essays* (1906) and Jowett's *Epistles of St. Paul* (3rd ed., 1895), and with Evelyn Abbott Jowett's *Letters* (1898). Abbott and Campbell wrote the excellent *Life of Jowett* (1897). With Jowett, Campbell had edited Plato's *Republic* (1894); and with Abbott, he edited *Sophocles* (1886), an abridgement of his greatest work, an edition of *Sophocles* (1879-81). He edited Plato's *Sophistes*, *Politicus* and *Theætetus*. His metrical version of *Sophocles* (1883) is superior to Plumptre's; and Campbell's translation (1900) of *Æschylus* in English verse is equalled only by Jebb's. Among his other important works are: *A Guide to Greek Tragedy* (1891), *Religion in Greek Literature* (1898), and *Tragic Drama in Æschylus, Sophocles and Shakespeare* (1904).

CAMPBELL-BANNERMAN, Sir HENRY. A British statesman, Prime Minister from 1905 to 1908, died in London on April 22, 1908. He was born at Stracathro in Scotland on Sept. 7, 1836, the son of Sir James Campbell. He assumed the name Bannerman in 1872 in accordance with the will of an uncle. He graduated at Trinity College, Cambridge, in 1858, and entered Parliament in 1868 as Liberal representative of the Stirling Burghs, which he continued to represent until his death. He was Financial Secretary of the War Office in the Gladstone government in 1870-74 and again in 1880-82; Secretary to the Admiralty in 1880-84, and Chief Secretary for Ireland in 1884-85. He was Secretary of State for War in the short-lived Liberal ministry of 1886, and likewise from 1892 to 1895 during the administrations of Mr. Gladstone and Lord Rosebery. In 1899 he was elected leader of the Liberal party in succession to Sir William Vernon Harcourt, and after the Liberal victory of 1905 became Prime Minister. He resigned April 5, 1908, because of failing health. His party leadership of the minority first fell in the difficult days of the Boer War, his opposition to which caused a break in the party, which it took some years to repair. The chief achievement of his administration was the establishment of respon-

sible government in the Transvaal. A contest with the peers was precipitated by their amendment of the Education Bill and was left as a legacy to his successor. Sir Henry, or "C.-B.," as he was familiarly known, was a man of kindly personality and great tact as a party leader, but of indomitable steadfastness in matters of principle. See GREAT BRITAIN.

CAMPBELLITES, or **CAMPBELL BAPTISTS**. A name sometimes applied to the Disciples of Christ (q. v.).

CAMPHOR. See FORMOSA.

CANADA, DOMINION OF. A British possession in North America. Its area, exclusive of the Canadian portion of the Great Lakes, the Gulf of St. Lawrence, and territorial seas, and population (1901), by provinces, are as follows:

	Area, sq. miles	Pop- ulation 1901
Prince Edward Island ..	2,184	103,259
Nova Scotia	21,428	459,574
New Brunswick	27,985	331,120
Quebec	351,873	1,648,898
Ontario	260,862	2,182,947
Manitoba	73,732	255,211
British Columbia	312,630	178,657
Alberta	253,540	72,841
Saskatchewan	250,650	91,460
Territories	1,922,735	158,940
Totals	3,745,574	5,371,315

Alberta and Saskatchewan were formed into provinces in 1905, and their population as given above was that contained in 1901 within their present limits. The population of Canada in 1901 consisted of 2,751,708 males and 2,619,607 females. The natives of Canada numbered 4,671,815; of the British Islands, 390,019; of British possessions, 15,864 (12,432 of Newfoundland); of Austria-Hungary, 28,407; China, 17,043; France, 7,994; Germany, 27,300; Iceland, 6,057; Italy, 6,854; Japan, 4,674; Norway and Sweden, 10,256; Russia, 31,231; United States, 127,899. The religious and denominations most numerously represented in 1901 were: Roman Catholic, 2,229,600; Methodist, 916,886; Presbyterian, 842,442; Anglican, 680,620; Baptist, 316,477; Lutheran, 92,524; Mennonite, 31,797; Congregational, 28,293; Greek Catholic, 15,630; Disciples, 14,900; Dukhobor, 8,775; Jewish, 16,401; Buddhist, 10,407; Confucian, 5,115; Pagan, 15,107; Agnostic, 3,613. The population classed as rural numbered 3,349,516 in 1901, and as urban, 2,021,799. The number of Indians in 1901 was 99,010.

A special census of the Northwest Provinces in 1906 gives Manitoba a population of 808,863 (466,257 males, 342,606 females); Alberta, 185,412 (108,283 males, 77,129 females); and Saskatchewan, 257,763 (152,791 males, 104,972 females). The cities having over 10,000 inhabitants in 1901 were as follows (the 1906 figures being for cities in the Northwest Provinces): Brandon (1906), 10,408; Brantford, 16,619; Calgary (1906), 11,967; Charlottetown, 12,080; Edmonton (1906), 11,167; Guelph, 11,496; Halifax, 40,832; Hamilton, 52,634; Hull, 13,993; Kingston, 17,961; London, 37,976; Mile End, 10,933; Montreal, 267,730; Ottawa, the capital of the Dominion, 59,928; Peterborough, 11,239; Quebec, 68,840; Ste. Conégonde, 10,912; St. Henri,

21,192; St. John, N. B., 40,711; St. Thomas, 11,485; Sherbrooke, 11,765; Toronto, 208,040; Valleyfield, 11,055; Vancouver, 27,010; Victoria, 20,816; Windsor, 12,153; Winnipeg, 42,430 (1906, 90,153).

The number of immigrants into Canada in 1906-07 (9 months) was 252,038; in 1907-08, 262,469. In the latter year, 120,182 were British and 58,312 American. The total immigration during the nine fiscal years 1900-1908 was 1,097,689 (449,363 British and 333,760 American). At the beginning of 1908 the Immigration Department took steps to restrict all immigration likely to congest the labor market during the industrial depression. The total number of arrivals at the ocean ports during the first 9 months of 1908 was 81,977, against 191,020 during the same period in 1907. The immigration from the United States during the same period was 45,653, against 44,809 during the same period in 1907. The total immigration during the 9 months was 127,630, against 235,829 during the same period in 1907.

EDUCATION. There is no centralized system of education, which is controlled exclusively by the Provinces. In Alberta and Saskatchewan school attendance is compulsory between the ages of 7 and 12 years inclusive, for at least 16 weeks each year, eight of which must be consecutive. In British Columbia education is compulsory between the ages of 7 and 14 years for six months each year. In Manitoba education is free up to 16 years of age, but not compulsory. In New Brunswick education is compulsory from 7 to 12 years of age. In Nova Scotia education is nominally compulsory between the ages of 6 and 16 years of age for at least 120 days each year, but exceptions are numerous from the 12th year. In Ontario education is compulsory between 8 and 14 years of age for the full term of each year. In Quebec the payment of the fees of school children is compulsory, but attendance is not compulsory. The policy of the Provinces also varies in regard to the relation of religion to the schools. In Quebec the council of public instruction is divided into Protestant and Catholic committees, the latter being composed of bishops, and the schools for the two sects are entirely distinct. In Ontario, Alberta, and Saskatchewan also there are separate schools for Catholics. In Manitoba there are no separate schools, but religious instruction may be given to the pupils whose parents demand it. In the other Provinces the schools are non-sectarian. The school expenditure is met by provincial grants and local taxation, the latter averaging over two-thirds of the total for all the provinces. Following are some leading details respecting the primary and secondary schools in the various provinces:

In Alberta there were, in 1907, 694 schools, of which 8 were Roman Catholic separate, with 426 teachers and 34,338 pupils. The total expenditure was \$1,894,791. The provincial normal school had 97 students in course of the year.

In British Columbia there were, in 1906-7, 15 high and 373 elementary schools, with 735 teachers and 30,039 pupils (1,355 in high schools). The total expenditure for the year was \$864,771. The provincial normal school had 58 students.

In Manitoba there were, in 1907, 1,943 schools with 2,480 teachers and 67,144 pupils. Included in the above were 7 high schools with 3,870

pupils. The total expenditure for the year was \$2,729,917. The provincial normal school had 128 students, besides 272 special students.

In New Brunswick there were in 1906-7, 1,766 schools, with 1,874 teachers, and 66,422 pupils. The number of high school pupils, included in the above, was 1,913. The normal school had 341 students in 1907-8. The University of New Brunswick had 147 students in 1907-8.

In Nova Scotia there were, in 1907, 2,465 schools, with 2,626 teachers and 100,007 pupils (7,646 in high schools). The total expenditure for the year was \$1,040,805, of which \$277,416 was contributed by the province.

In Ontario there were, in 1907, 5,819 public schools, with 8,859 teachers (exclusive of kindergarten and night school teachers), and 396,716 pupils; 449 Roman Catholic separate schools, with 1034 teachers and 51,502 pupils; 5 Protestant separate schools with 326 pupils; 145 kindergartens, with 15,242 pupils; 20 night schools, with 1,552 pupils; 143 high schools, with 750 teachers and 30,331 pupils; and 120 continuation schools, with 5,317 pupils. The total expenditure was \$8,769,876. The proportion of the expenditure paid by the province was 9.28 per cent.; by local taxation, 82.9 per cent.; and from other sources, 7.82 per cent.

In Prince Edward Island there were, in 1907, 479 schools, with 572 teachers and 19,036 pupils. The total expenditure was \$170,327.

In Quebec there were, in 1906-7, 5,592 elementary schools, with 6,630 teachers and 209,880 pupils; 627 model schools, with 92,918 pupils; 198 academies, with 44,818 pupils; 6 normal schools, with 467 students; 7 schools annexed to normal schools, with 1,003 pupils; 19 Roman Catholic classical colleges, with 6,268 students; 4 universities, with 2,468 students; a school of art and design, with 2,257 students; 57 night schools, with 6,140 pupils; and 4 schools for the deaf, dumb, and blind, with 537 pupils. There are separate Roman Catholic and Protestant elementary schools, model schools, and academies. The total school revenue was \$4,591,391, of which \$1,517,741 was from fees from subsidized institutions, \$540,650 contributed by the province, and the remainder from local taxation.

FISHERIES. The value of the total yield of the fisheries of Canada in 1905 was \$29,479,562; in 1906, \$26,279,485. The fish representing the highest values in 1906 were: Dried cod, \$3,353,875; fresh halibut, \$683,840; fresh herring, \$771,474; salted herring, \$1,534,336; smoked herring, \$3,704,403; fresh lobsters, \$400,748; preserved lobsters, \$2,522,179; fresh mackerel, \$588,603; salted mackerel, \$781,125; pickerel, \$713,437; fresh salmon, \$1,229,162; preserved salmon, \$3,778,606; dry salted, pickled, and smoked salmon, \$848,992; trout, \$791,467; whitefish, \$906,750. The value of fur sealskins was \$316,224. The total values of the catch of the various provinces in 1906 were: British Columbia, \$7,003,347; Manitoba and Territories, \$1,492,923; New Brunswick, \$4,905,225; Nova Scotia, \$7,799,160; Ontario, \$1,734,856; Prince Edward Island, \$1,168,939; Quebec, \$2,175,035. The distribution of fry from the Dominion hatcheries in 1907 amounted to the number of 813,979,350. Bounties amounting to \$156,113 were paid by the Dominion in 1907 to 25,920 fishermen. The total expenditures of the Dominion on fisheries

amounted to \$693,685, including \$204,837 on the protection service. Exclusive of the lobster fisheries, the Canadian fisheries employed in 1907, 76,100 men and 1,430 vessels or 40,827 tons, valued at \$2,841,875.

MINING AND METALS. The total value of the mineral and metal production of Canada in 1908 was approximately \$87,323,849, against \$86,842,765 in 1907. The approximate quantities and values of the principal mineral products of Canada in 1908 are shown in the following:

	Quantity	Value
Asbestos, tons	65,534	\$2,547,507
Portland cement, bbls...	2,665,289	3,709,063
Coal, tons	10,904,466	25,567,235
Copper, lbs.	64,361,636	8,500,885
Corundum, tons	1,039	100,389
Gold		9,559,274
Gypsum, tons	340,964	575,701
Lead, lbs.	45,725,886	1,920,487
Mica		191,602
Natural gas		1,012,060
Nickel, lbs.	19,143,111	8,231,538
Petroleum, bbls.	527,987	747,102
Pig Iron (from Canadian ore), tons	99,420	1,664,302
Pyrites, tons	47,336	224,824
Salt, tons	79,975	378,798
Silver, ozs.	22,070,212	11,667,197
Sewer pipes		514,042

The total pig iron production in 1907 was 581,146 tons; in 1908, 563,672 tons. Nearly three-fourths of the cement output came from the vicinity of Owen Sound, Ontario, where the plants were employed to their full capacity, owing to the demand for concrete material for building the transcontinental railroad. The gold production in 1906 was valued at \$11,495,201, as compared with \$8,264,765 in 1907 and \$9,559,274 in 1908. The falling off in 1907 amounted to about 29 per cent. The production in Yukon alone fell from \$5,257,739 in 1906 to about \$3,150,000 in 1907, but increased to about \$3,600,000 in 1908. The production of petroleum is practically all derived from the Ontario peninsula, and has been estimated on the basis of the bounty of 1½ cents per gallon paid by the Dominion government. The total bounty paid in 1908 was \$277,193. About 440 wells were producing natural gas in 1907, of which 114 were bored during the year.

The following information is obtained from Provincial reports: In British Columbia in 1907 the total mineral production amounted to \$25,882,560, against \$24,980,546 in 1906. The production of placer gold was 41,450 ounces, valued at \$828,000 (in 1906: \$948,400); lode gold, 196,179 ounces, \$4,055,020 (in 1906: \$4,630,639); silver, 2,745,448 ounces, \$1,703,825; lead, 47,738,703 pounds, \$2,291,458; copper, 40,832,720 pounds, \$8,166,544; coal, 1,800,067 long tons, \$6,300,235; coke, 222,913 tons, \$1,337,478; other minerals, \$1,200,000. Compared with 1906, all the metals show a falling off both as to quantities and values, while coal and coke show an increase in both respects. The total mineral production of British Columbia from 1852 to 1907 inclusive amounted to \$299,526,282.

The principal mineral products of Nova Scotia during the year ended Sep. 30, 1907, were as follows: Coal, 5,730,660 tons; coke, 493,102

tons; pig iron, mostly from imported ores, 293,436 tons; limestone, 458,601 tons; gypsum, 332,345 tons; gold, 15,006 ounces; cement, 58,762 barrels.

The mineral and metal production of Ontario in 1907 was valued at \$25,019,373—the highest on record and showing an increase of 12 per cent. over 1906. The total number of employees was 13,613, who received \$7,747,195 in wages. The values of the principal mineral and metal products were: Gold, \$66,399; silver, \$6,157,871; cobalt, \$92,751; nickel, \$2,271,616; copper, \$1,045,511; iron ore, \$482,532; pig iron (286,216 tons), \$4,716,857; brick and tile, \$3,082,057; building and crushed stone, \$675,000; Portland cement, \$2,777,478; corundum, \$242,608; lime, \$418,700; crude petroleum, \$1,049,631; salt, \$432,936; sewer pipe, \$435,088. The value of the output of the Cobalt District in 1908 was about \$9,500,000.

With the exception of a small output in Vermont and Georgia, Quebec supplies the bulk of the asbestos produced on the North American Continent. In 1908 a new asbestos field was discovered near Eastman, Quebec, 65 miles from the Danville mines and 100 miles from the Thetford, Black Lake, Broughton, and other mines.

There are about 37,000 square miles of peat bogs in Canada, of which 25,000 square miles are in Alberta, Saskatchewan, and the Territories, and 10,000 square miles in the Moose River basin of Ontario.

AGRICULTURE. The area, production, and value of the field crops of the Dominion, excepting British Columbia, in 1908 were as follows:

Field crop.	Area	Yield	Value
	Acres.	U. S. Bushels.	Dollars.
Fall wheat	770,400	19,390,419	16,253,000
Spring wheat	5,839,900	96,586,939	74,975,000
Oats	7,941,100	258,267,631	96,489,000
Barley	1,745,700	48,235,704	21,353,000
Rye	100,350	1,764,922	1,262,000
Peas	412,900	7,282,496	5,970,000
Buckwheat	291,300	7,378,427	4,215,000
Mixed grains	581,900	19,649,329	10,140,000
Flax	139,300	1,546,241	1,457,000
Beans	60,100	1,284,236	1,988,000
Corn for husking .	366,200	23,592,811	11,837,000
Potatoes	503,600	68,796,893	34,819,000
Turnips and other roots	271,443	104,438,831	17,532,000
Hay and clover ..	8,210,900	12,824,000	121,884,000
Fodder corn	259,770	3,279,360	11,781,000
Sugar beets	10,800	122,080	578,000
Total	27,505,663	—	432,533,000

b Tons of 2,000 pounds.

The approximate value in 1908 of farm crops by provinces, excepting British Columbia, was as follows: Alberta, \$14,000,000; Manitoba, \$66,000,000; New Brunswick, \$28,000,000; Nova Scotia, \$20,000,000; Ontario \$185,000,000; Prince Edward Island, \$9,408,000; Quebec, \$80,000,000; Saskatchewan, \$37,000,000.

Agricultural censuses of Canada were taken in 1906 for the Northwest Provinces (Manitoba, Saskatchewan, and Alberta), and in 1907 for the Eastern Provinces, (Ontario, Quebec, New Brunswick, Nova Scotia, and Prince Edward Island). Some of the leading results of these censuses, together with later information available, are given in the following, by provinces:

ALBERTA. In 1906, there were 30,286 farms, against 9,433 in 1901. The acreage of all field crops was 916,100. The number of horses was 226,534; milch cows, 101,245; other cattle, 849,837; sheep, 154,266; swine, 114,623.

MANITOBA. In 1906 there were 36,141 farms, against 31,812 in 1901. The acreage of all field crops was 4,220,161. The number of horses was 215,819; milch cows, 170,543; other cattle, 350,969; sheep, 28,975; swine, 200,509.

NEW BRUNSWICK. In 1907 the total farm land cleared was 1,664,941 acres (37.79 per cent. of the occupied area), against 1,405,615 in 1901. The land in all crops was 1,087,626 acres; in orchard and garden, 16,290. The number of horses was 65,784; milch cows, 128,706; other cattle, 130,937; sheep, 250,546; swine, 97,091; poultry, 1,031,583.

NOVA SCOTIA. In 1907 the total farm land cleared was 1,834,802 acres (36.22 per cent. of the area occupied), against 1,244,275 in 1901. The land in all crops was 883,472 acres; in orchard and garden, 54,051. The number of horses was 63,418; milch cows, 143,362; other cattle, 198,861; sheep, 384,940; swine, 74,811; poultry, 1,040,467. The yield of apples in the Annapolis valley in 1908 was about 800,000 barrels.

ONTARIO. In 1907 the total farm land cleared was 14,123,742 acres (57.86 per cent. of the total area occupied), against 13,223,313 in 1901. The land in all crops was 9,764,724 acres; in orchard and gardens, 326,290. The number of horses was 725,666; milch cows, 1,152,071; other cattle, 1,774,165; sheep, 1,106,083; swine, 2,049,666; poultry, 13,428,076.

PRINCE EDWARD ISLAND. In 1907 the total farm area cleared was 760,036 acres (63.69 per cent. of the occupied area), against 724,978 in 1901. The land in all crops was 503,579 acres; in orchard and garden, 6,077. The number of horses was 34,363; milch cows, 53,096; other cattle, 61,156; sheep, 111,202; swine, 55,005; poultry, 720,787.

QUEBEC. In 1907 the total farm land cleared was 8,513,916 acres (59.02 per cent. of the occupied area), against 7,421,264 in 1901. The land in all crops was 5,250,405 acres; in garden and orchard, 77,416. The number of horses was 351,176; milch cows, 876,135; other cattle, 668,693; sheep, 626,033; swine, 729,453; poultry, 4,342,241.

SASKATCHEWAN. In 1906 there were 55,971 farms, against 13,380 in 1901. The acreage of all field crops was 3,271,436. The number of horses was 240,566; milch cows, 112,618; other cattle, 360,236; sheep, 121,290; swine, 123,916.

The export of dairy produce from Canada in 1907-8 was as follows: Butter, 4,786,954 pounds, valued at \$1,068,703; cheese, 189,710,463 pounds, valued at \$22,887,237 (\$22,763,736 to Great Britain).

British Columbia depends for its supplies of farm and dairy produce mainly upon importations from other parts of Canada as well as from foreign countries. In 1907-8 imports from foreign countries of dairy produce, meats, vegetables, fruits, hay, and living animals, amounted to \$1,865,542. This sum represented only about 26.5 per cent. of the total import of these articles. The fruit acreage in the province is extending; in 1908 it was estimated at considerably over 100,000 acres.

MANUFACTURES. The census of the manufactures of Canada, taken in 1906 and covering the year 1905, shows the following general results:

TABLE 1., STATISTICS OF MANUFACTURES FOR ALL ESTABLISHMENTS BY PROVINCES, 1905.

	Estab- lish- ments	Capital	Employee	Salaries and Wages	Value of Products
	No.	\$	No.	\$	\$
Canada	15,796	846,585,023	392,530	165,100,011	718,352,603
Alberta	120	5,545,821	2,045	1,167,107	5,116,782
British Columbia	459	53,022,033	23,748	11,413,315	38,288,378
Manitoba	354	27,517,297	10,333	5,909,791	28,155,732
New Brunswick	628	26,792,698	19,526	6,581,411	22,133,951
Nova Scotia	909	75,089,191	24,237	9,284,864	32,574,323
Ontario	7,996	397,484,705	189,370	82,415,520	367,850,002
Prince Edward I.	285	1,680,541	2,919	445,676	1,851,615
Quebec	4,965	255,479,662	119,008	47,160,452	219,861,648
Saskatchewan	80	3,973,075	1,444	721,875	2,520,172

Included in the above table are establishments employing less than five persons, which for the whole of Canada numbered 3,249, with \$12,668,868 of capital, 8,610 employees, \$2,944,433 of salaries and wages, and \$11,906,025 val-

ue of products. The statistics for the whole of Canada of establishments employing five persons and over, by groups of industries, are shown in table II.

TABLE II., ESTABLISHMENTS EMPLOYING FIVE PERSONS AND OVER BY GROUPS OF INDUSTRIES, 1905.

Kinds of Industries	Estab- lish- ments	Capital	Wage earners	Wages for Labor	Products. Value of
	No.	\$	No.	\$	\$
Total of groups	12,547	833,916,155	348,329	131,914,005	706,446,578
1. Food products	4,774	88,826,866	44,995	11,839,055	172,017,002
2. Textiles	1,432	73,758,622	55,822	17,259,210	84,370,099
3. Iron and steel products	584	60,642,516	30,187	13,767,569	52,587,051
4. Timber and lumber and their re- manufactures	2,234	148,416,643	77,968	28,952,869	109,500,970
5. Leather and its finished products.....	321	27,681,935	17,572	6,240,985	41,201,872
6. Paper and printing	606	47,863,983	19,266	8,390,804	32,773,880
7. Liquors and beverages	173	26,129,862	3,651	1,725,758	13,928,701
8. Chemicals and allied products	141	16,039,312	3,281	1,247,332	15,290,822
9. Clay, glass, and stone products.....	641	24,800,605	13,276	4,932,640	13,558,921
10. Metals and metal products other than steel	414	104,079,075	20,116	10,665,471	50,068,669
11. Tobacco and its manufactures.....	133	10,575,402	7,052	2,326,317	15,189,720
12. Vehicles for land transportation.....	291	31,076,801	22,160	10,729,814	36,911,124
13. Vessels for water transportation	51	3,409,699	1,784	763,236	1,892,253
14. Miscellaneous industries	689	169,190,960	30,093	12,605,056	65,721,741
15. Hand trades	63	1,423,874	1,106	469,889	1,433,753

The number of establishments employing five persons and over in 1905 in Canada was 12,547, against 14,650 in 1900, a decrease of 2,103. The capital employed in the manufacturing establishments (employing five persons and over) in 1905 was \$833,916,155, against \$446,916,487 in 1900, showing an increase of \$386,999,668. The average capital per establishment in 1905 was \$66,463 against \$30,506 in 1900, an increase of \$35,957. The average capital per establishment in 1905 varied considerably for the different provinces, being \$144,362 in British Columbia, \$103,610 in Nova Scotia, \$96,681 in Manitoba, \$69,472 in Saskatchewan, \$63,423 in Ontario, \$61,174 in Quebec, \$55,674 in Alberta, \$49,834 in New Brunswick, and \$6,968 in Prince Edward Island. Of the total capital in all establishments in Canada in 1905, 55.19 per cent. was fixed in land, buildings, and plant, and 44.81 per cent. was circulating or working capital. In this respect, also, there are great differences between provinces, the percentage of fixed capital being as high as 78.93 per cent. in

Nova Scotia and 73.23 per cent. in British Columbia, and as low as 48.98 per cent. in Ontario.

The total number of employees in industrial establishments employing five persons and over in Canada in 1905 was 383,920, against 339,173 in 1900, an increase of 44,747. Salaries and wages totalled \$162,155,578 in 1905, against \$113,249,350 in 1900, an increase of \$48,906,228. Thus the number of employees increased by 13 per cent., while salaries and wages increased 43 per cent. The average salary per employee was \$850 in 1905, against \$771 in 1900, while the average wage per employee in 1905 was \$379, against \$290 in 1900. The average wage in 1905 was highest in Manitoba (\$519), Alberta (\$517) and Saskatchewan (\$422); approached the average in Ontario (\$369), Quebec (\$357), Nova Scotia (\$351), and New Brunswick (\$305); and was lowest in Prince Edward Island (\$125). The number of female wage earners in 1905 was 66,596, against 74,079 in 1900—a decrease of 7,483, or 11 per cent. Female wages amounted in 1905 to \$14,559,936, against \$12,057,407—an increase

of \$2,502,529, or 20 per cent. The average female wage increased from \$163 in 1900 to \$218 in 1905—34 per cent.

The value of products of the establishments of Canada employing five persons and over in 1905 was \$706,446,578, against \$481,053,375 in 1900—an increase of \$225,393,203, or 46.85 per cent. Alberta and Saskatchewan together show an increase of 277.80 per cent.; Manitoba, 115.49; British Columbia, 94.35; Ontario, 49.62; Quebec, 36.76; Nova Scotia, 35.58; New Brunswick, 4.10; while Prince Edward Island shows a decrease of 27.09 per cent. The following table shows the number of establishments, the average value of products, and the average product per establishment, of the largest manufacturing establishments in Canada in 1905, compared with the corresponding figures for 1900:—

TABLE III. LARGEST MANUFACTURING ESTABLISHMENTS, 1900-1905.

	Estab- lish- ments	Value of Products	Average product per estab- lish- ment
	No.	\$	\$
1. Establishments with products of \$200,000 to under \$200,000			
1905	479	145,587,183	303,940
1900	323	94,531,698	292,668
2. Establishments with products of \$500,000 to under \$1,000,000			
1905	139	92,065,800	662,344
1900	68	46,729,825	681,321
3. Establishments with products of \$1,000,000 and over,			
1905	81	177,273,913	2,188,567
1900	39	71,051,834	1,821,242

On Dec. 31, 1907, there were in Canada 16 completed blast furnaces, of which 14 were in blast and 2 idle. In addition there were 3 furnaces partially completed. On June 30, 1908, the number of furnaces in blast was 7, and of those idle, 9. In the calendar year 1907 the Dominion government paid \$2,305,296 in bounties on iron and steel production, of which \$201,421 was on 95,915 tons of pig iron made from Canadian ore; \$591,584 on 537,803 tons of pig iron from imported ore; \$1,099,173 on 666,500 tons of steel ingots; and \$412,417 on 68,738 tons of steel wire rods.

In 1902 western Ontario had great hopes of rivalling Michigan in raising sugar beets and manufacturing them into sugar. Ontario has practically the same soil and climate as Michigan, and the success of the industry across the lake induced the Canadian farmers to raise sugar beets. Beet-sugar factories were erected at Wiarton, Dresden, Berlin and Wallaceburg at a cost of several million dollars. All these plants were operated for a time at a loss, with beets raised in the locality of each factory. The factory at Dresden, the first to be abandoned, was sold to a firm in Michigan, and was removed to that State. The Wiarton plant was dismantled and the machinery shipped to Los Angeles, Cal., to be there used as a distillery. The plant at Berlin was also idle for some time and was to be abandoned. The Wallaceburg

factory is in operation, but much of the output is the product of sugar refined from imported raw material. In other words, this plant is more of a sugar refinery than a beet-sugar factory. The principal cause of the failure of this industry in Ontario is the refusal of the farmers to raise any more sugar beets after two seasons' trial. They say that other crops bring them larger returns with less labor.

The province of Manitoba has not yet reached the manufacturing stage in the course of its economic development. Lumber, bricks, and similar articles required by settlers are largely produced. But in 1908 a stock company was establishing a match factory at Selkirk, which was expected to be in full operation in the spring of 1909. The capital of the company is \$40,000. In 1908 there were three other match factories in Canada, with a total capital of \$250,000. One of these, with \$190,000 capital, largely controls the trade. The three factories employed 278 working people. In 1871 there were 24 match factories with 1127 workers.

The province of Manitoba has not yet reached year 1908 was 49,928. The production during the fiscal year 1907-8 of spirits was 6,849,763 gallons; malt, 99,577,820 pounds; malt liquor, 38,800,380 gallons. In the latter part of 1908 an arrangement was made with the United States regulating the use of the water of the Niagara River for obtaining power. Canadians will be allowed the use of an amount of water sufficient to generate 425,000 horse power; Americans, 236,000 horse-power.

FOREIGN COMMERCE. For the fiscal year ended Mar. 31, 1908, the total imports entered for consumption amounted to \$358,373,685, and the total exports, \$280,006,606, against \$340,374,745 and \$272,206,606 respectively in the fiscal year 1907 (9 months). In 1908 the imports consisted of \$351,825,024 worth of merchandise, of which \$218,105,116 was dutiable and \$133,719,908 free, and \$6,548,661 of coin and bullion; the exports consisted of \$263,368,952 of merchandise, of which \$246,960,968 was home produce and \$16,407,984 foreign produce, and \$16,637,654 coin and bullion. The customs duties collected on imports in 1908 amounted to \$58,320,737. The principal imports entered for consumption in 1908 were: Breadstuffs, \$11,341,141; coal and coke, \$31,214,236; cotton, \$6,096,487; cotton manufactures, \$17,331,761; drugs, dyes, chemicals, and medicines, \$9,389,107; electric apparatus, \$3,133,761; flax, hemp, jute, and manufactures thereof, \$6,103,414; fruits, \$8,831,833; hides and skins, \$4,908,871; iron and steel and manufactures thereof, \$62,052,741; settlers' effects, \$10,681,625; silk and its manufactures, \$5,291,925; sugar, molasses, etc., \$11,948,629; wood and its manufactures, \$13,219,709; wool and its manufactures, \$22,894,548. The exports of home produce in 1908 were classed as follows: Products of the mine, \$39,560,612; of the fisheries, \$13,906,567; of the forest, \$44,504,371 (lumber, \$39,911,288); animal produce, \$55,913,782 (living animals, \$11,650,202; furs, \$2,608,574; meats, \$12,418,583); agricultural produce, \$75,548,935 (fruits, \$6,012,894; grains, \$53,080,577; flour and meal, \$8,325,655); manufactures, \$33,069,468 (agricultural machinery, \$3,371,283; drugs and chemicals, \$2,335,871; iron and steel, \$2,735,060; leather, \$2,200,674; paper, \$3,511,104). The trade with the principal countries of origin and destination in 1908 was as follows:—

From and to	Imports entered for consumption	Exports of Canadian Produce
United States	\$210,652,825	\$90,814,871
Great Britain	94,959,471	126,194,124
Newfoundland	1,777,469	3,212,635
Australia	440,543	2,856,709
New Zealand	256,579	990,551
British Africa	32,193	2,003,598
British East Indies	4,050,098	29,800
British West Indies	7,666,703	2,449,646
British Guiana	1,328,356	601,395
British Empire	111,240,895	139,172,890
Argentina	872,026	2,264,122
Austria-Hungary	1,331,389	11,315
Belgium	2,380,649	2,248,747
Cuba	471,017	1,353,442
France	9,901,909	1,762,832
Germany	8,163,047	1,959,891
Holland,	1,426,335	732,409
Italy	781,497	347,238
Spain	1,126,977	106,594
Switzerland	2,734,779	16,414
China	728,054	954,262
Japan	2,177,244	734,868
Mexico	919,932	475,147

Since 1900 British goods have been enjoying a preferential tariff amounting to a reduction of 33 1-3 per cent. The commercial convention with France finally adopted, in 1908, provides that a large number of Canadian products shall have the benefit of the French minimum tariff in France and its colonies, and that a large number of the products of France and its colonies shall have the benefit of the Canadian intermediate tariff and of the lowest duties applicable to like products of foreign origin.

The foreign trade passing through the ports of the various provinces in 1908 is shown in the following table:

	Imports	Exports
Ontario	\$160,048,542	\$68,550,565
Quebec	127,291,492	134,413,105
Nova Scotia	15,291,937	17,359,714
New Brunswick	10,776,591	26,363,098
British Columbia	24,180,452	23,941,187
Manitoba	22,566,386	4,103,067
Prince Edward Island	689,274	636,406
Alberta	4,606,959	297,320
Saskatchewan	3,744,339	883,271
Yukon	1,534,008	3,458,874

The foreign trade of the principal ports in 1908 was as follows:

	Imports	Exports
Bridgeburg, Ont.	\$2,303,838	\$9,315,647
Fort William, Ont.	3,429,225	7,570,096
Hamilton, Ont.	13,071,666	240
Niagara Falls, Ont.	1,835,990	17,616,132
Port Arthur, Ont.	3,113,337	5,165,882
Prescott, Ont.	1,904,565	9,597,371
Sault Ste. Marie, Ont. ..	4,350,927	6,332,086
Toronto, Ont.	63,519,859	23,753
Windsor, Ont.	6,275,019	6,378,371
Coaticook, Que.	247,298	12,460,239
Montreal, Que.	103,534,432	89,782,587
Quebec, Que.	13,322,824	1,768,403
Halifax, N. S.	9,050,370	9,769,143
St. John, N. B.	7,372,389	20,304,281
Vancouver, B. C.	13,637,841	6,734,726
Winnipeg, Man.	18,963,378	366,011

SHIPPING AND NAVIGATION. The number and tonnage of all vessels on the shipping registry of Canada on Dec. 31, 1906, were 7,516 and 663,415, respectively, including 2,811 steamers of 225,625 tons. The registered tonnage of vessels entered and cleared in the foreign trade in 1907-8 was 39,575,031; in the coasting trade, 50,529,835. Of the tonnage of sea-going vessels entered and cleared (19,491,271), 10,329,515 was British, 2,606,660 Canadian, and 6,555,096 foreign (3,549,271 American). Of the tonnage entered and cleared in the trade on rivers and lakes between Canada and the United States, 9,111,186 was Canadian and 10,972,574 American.

INTERNAL COMMUNICATIONS. The length of steam railways in operation in Canada on June 30, 1907, was 22,452 miles (1,076 miles double track), showing an increase of 1,099 miles during the year, of electric railways, 815 miles. Included in these figures are the Intercolonial and Prince Edward Island railways, 1,719 miles, owned by the Dominion government. The gross earnings and operating expenses of steam railways during the year ended June 30, 1907, were \$146,738,215 and \$103,748,677 respectively; of electric railways, \$12,635,905 and \$7,737,252. The cost of the construction of government railways down to June 30, 1907, was \$162,387,330; working expenses, \$130,194,269; revenue, \$118,819,364; total deficit, \$11,374,905. For the year ending June 30, 1907, the government railways showed a deficit of \$80,453. The number of persons killed and injured on steam railways in 1907 was 587 and 1,698 respectively; on electric railways, 71 and 1,736. In 1908 the Canadian Pacific Railway opened 906 miles of new line; the Grand Trunk Pacific, 870 miles of new line; and the Canadian Northern completed or partly built 930 miles, making a total of at least 2,000 miles of new line built in 1908. The greatest railway enterprise in progress in 1908 was the extension of the Grand Trunk Railway through the Northwest to the Pacific terminal of Prince Rupert. In 1908 trains were running regularly over the whole section 666 miles west of Winnipeg into Alberta. It was expected that Prince Rupert would be reached in 1911. A railway was also projected from the west to Fort Churchill, on Hudson Bay.

The canal, river, and lake system of Canada has over 2,700 miles of navigation. The proposed Georgian Bay Canal, the survey of which was completed, would run from Georgian Bay, on Lake Huron, through the French, Nipissing, and Ottawa rivers to Montreal, thus shortening the distance to Liverpool via New York by 806 miles. The length of telegraph lines in 1907 was 32,455 miles.

BANKS. In 1907 (monthly averages) the paid-up capital of the chartered banks of Canada was \$95,953,732; reserve funds, \$69,806,892; notes in circulation, \$75,784,482; deposits \$654,839,711; outstanding loans, \$709,975,274; liabilities (excluding capital and reserves), \$769,026,924; assets, \$945,685,708. The above deposits included \$16,654,729 of the Dominion and provincial governments, and \$58,828,181 deposited elsewhere than in Canada. The transactions of the clearing houses of chartered banks in 1907 were \$4,197,465,393. The average monthly circulation of Dominion notes in 1907 was \$59,017,440. The number of post office savings banks in 1907 was 1,043. The transactions of the post office and Dominion

government savings banks during the fiscal year ending Mar. 31, 1907, were as follows: Cash deposits in year (9 months), \$12,000,958; withdrawals, \$12,731,468; at credit of depositors Mar. 31, \$62,541,802. On May 31, 1908, the chartered banks had a paid-up capital of \$96,008,221; notes in circulation, \$67,770,018; deposits by the public, \$552,079,199; deposits elsewhere than in Canada, \$61,262,006.

BUSINESS CONDITIONS IN 1908. The world-wide business depression which began in the latter part of 1907 manifested itself in Canada in various ways. People ceased to undertake new business ventures, contenting themselves with serving immediate needs at a moderate profit. The number of idle blast furnaces, as noted above, increased from two at the end of 1907 to nine in the middle of 1908. Insolvencies during the first nine months of 1908 numbered 1,221, with liabilities of \$11,826,386, against 870 failures, with \$4,022,062 of liabilities, for the same period in 1907. The circulation of notes of the chartered banks decreased from an average of nearly \$76,000,000 for 1907 to less than \$67,000,000 on May 31, 1908, while deposits in them by the public decreased from an average of \$579,356,801, for 1907 to \$552,079,179 on May 31. The imports for home consumption during the first seven months of the fiscal year 1908-9 (April-October) declined nearly \$60,000,000 from the same period in 1907, and the exports showed a decrease of nearly \$13,000,000.

FINANCE. In the fiscal year 1907-8 the revenue of the Consolidated Fund was \$96,054,506; other revenue, \$911; total revenue, \$96,055,417. The principal sources of revenue were: Customs, \$7,543,811; excise, \$15,782,152; post office (net), \$7,107,887; Dominion lands, \$1,883,620; interest on investments, \$1,925,569; public works, including railways and canals, \$9,973,523. The expenditure on account of the Consolidated Fund in 1907-8 was \$76,641,452, the principal items being: Interest on public debt, \$10,973,597; sinking funds, \$2,234,263; militia and defense, \$5,498,184; public works, \$8,721,327; subsidies to provinces, \$9,032,775; mail subsidies and steamship subventions, \$1,590,384; lighthouse and coast service, \$2,835,543; Indians, \$1,276,964. The expenditure in 1907-8 chargeable to capital was \$30,428,996, of which \$1,723,156 was on canals, \$4,369,738 on the Inter-colonial and connected railways, \$2,969,049 on public works \$18,910,254 on the National Transcontinental Railway, \$4,583,092 on the Prince Edward Island Railway, and \$1,297,905 on militia. The public debt on Mar. 31, 1908, was \$408,207,158, showing an increase during the year of \$14,289,000. The assets of the Dominion on Mar. 31, 1908, amounted to \$130,246,298, leaving a net debt of \$277,960,860.

ARMY. The King is commander-in-chief of the naval and military forces, but the control of them rests with the Dominion Parliament. In 1904 a Militia Council was organized and the office of Inspector-General created. The entire country is divided into 13 military districts. All citizens from 18 to 60 years of age are included in the militia, which is divided into 4 classes. The first two classes include the unmarried men from 18 to 30 and from 30 to 45 years respectively; the third class includes married men from 18 to 45 years; and the fourth class, all men from 45 to 60 years. Recruitment in the militia is by voluntary enroll-

ment and by drawing lots. The duration of service is three years. The annual number of reservists called for training for a period of from 8 to 16 days is 45,000. In 1908 the effective force consisted of the permanent militia, 2,884 men; the active militia in training, 44,121 men, and 7,732 horses. The naval defense of Canada is at present entrusted to the Imperial authorities.

GOVERNMENT. The Governor-General in 1908 was Earl Grey. The Privy Council and Cabinet consisted of the following: Premier and President, Sir Wilfrid Laurier; Secretary of State, Charles Murphy; Minister of Trade and Commerce, Sir R. J. Cartwright; Minister of Justice and Attorney-General, A. B. Aylesworth; Minister of Marine and Fisheries, Louis P. Brodeur; Minister of Railways and Canals, G. P. Graham; Minister of Militia and Defense, Sir F. W. Borden; Minister of Finance, W. S. Fielding; Postmaster-General, Rudolphe Lemieux; Minister of Agriculture, Sydney A. Fisher; Minister of Public Works, William Pugsley; Minister of Interior, Frank Oliver; Minister of Customs, William Paterson; Minister of Inland Revenue, W. P. Templeman; Minister of Labor, W. L. M. King.

Each of the nine provinces has a separate legislature, administration, and responsible ministry. A Lieutenant-Governor appointed by the Governor-General is at the head of the executive. In Quebec and Nova Scotia the legislature is bicameral, in the others, unicameral. Yukon Territory is governed by a Commissioner and an Executive Council of ten members, five of whom are elected by the people. The Northwest Territories are governed by a Commissioner and a Council of four, appointed by the Governor-General in Council.

HISTORY.

ASIATIC IMMIGRATION QUESTION. On Sept. 7, 1907, rioting took place at Vancouver, British Columbia, owing to the opposition of labor unions and their sympathizers to the further immigration of Japanese and Chinese laborers. Some fifty Japanese and Chinese stores were wrecked and a few of the Asiatics were injured. The Canadian government immediately communicated with the Japanese government and with the British government. The causes of the riot were investigated and an expression of regret was sent to Japan and cordially accepted. This affair brought up the question whether in view of Great Britain's treaty with Japan the Canadian attitude toward Japanese immigration could be maintained. The British government showed itself considerate of Canadian interests in this matter and consented to the sending of an emissary to Japan to negotiate an arrangement which should be satisfactory to Canada. The Hon. Rudolphe Lemieux, Postmaster-General and Minister of Labor, was chosen by the Canadian government as the envoy. It is to be noted that Mr. Lemieux went as the imperial envoy of the Canadian government, and not as the Canadian envoy of the Imperial government. Thus the mission was regarded as marking an important step in the attainment of the aim sought by the present Canadian government, that is, power to control matters exclusively or principally relating to Canada.

Mr. Lemieux was cordially received by the Japanese government and his negotiations were successful. After his return he issued, on Jan.

21, 1908, a statement concerning his mission. He declared that the Japanese government was in no wise to blame for the immigration, but only the Japanese emigration companies. From 1903 down to 1905, Canada had received repeated assurances from Japan that the Japanese government would voluntarily restrict immigration. Having received these pledges, Canada had unreservedly acceded to the Anglo-Japanese Treaty of 1905. Count Hayashi, who had shown himself friendly to Canada throughout, wrote to Mr. Lemieux, Dec. 23, 1907, that the Japanese government would take effective means to restrict immigration, and would pay especial regard to the conditions in Canada and meet the desires of the Canadian government, so far as was compatible with the dignity of the state and the spirit of the treaty. Mr. Lemieux said that contract laborers would be excluded, and pointed out that the restriction of Hawaiian immigration was within the power of the Canadian government, for Japan had no control over it. On Jan. 20 he submitted the report of Mr. Mackenzie King, the deputy minister of labor, on his investigation of the question in British Columbia (q. v.). Mr. King also referred to the fact that the Japanese government did not control Hawaiian immigration, which therefore might be restricted by Canada, and he added that if this were checked and the immigration from places outside Japan were restricted, there would be little danger of undesirable immigration.

Thus although the present Anglo-Japanese Treaty recognizes the right of Japanese subjects to enter, travel, and reside in the Dominion, it was expected as a result of the understanding between the two governments reached in these negotiations that no further trouble would arise on this score. In British Columbia (q. v.), however, there was strong opposition to the policy of the Dominion government, and some complications arose there in connection with the question. In January, Orders in Council became effective prohibiting the landing in the Dominion of any immigrants whose passage had been paid by a charitable institution or out of the public moneys, and empowering the government to exclude immigrants who did not come on a through ticket from the country of their origin or adoption. This led to the arrest of two Japanese and a number of East Indians, who had come to Canada from Hong Kong. On Mar. 25, however, the British Columbia Supreme Court held that the Order in Council was invalid, and ordered the release of the prisoners. On Mar. 27, the East Indian immigrants in Vancouver held a mass meeting and protested against the discrimination shown against them. A telegram was sent from the meeting to the British India Office at London. The ground on which the Supreme Court had annulled the order for the deportation of the Indians was a technical one and was removed by a new order of the Cabinet. A little later, on Apr. 10, a bill was passed by the Dominion Parliament which provided for the exclusion of immigrants unless they came from the country of their origin or of their adoption.

On May 6, Mr. Mackenzie King, who had been sent to England to confer with the imperial authorities on the subject of East Indian immigration, presented a report to the Canadian Parliament in which he declared that he believed a satisfactory adjustment could be reached without

recourse to legislation, either in Canada or the home country. The home authorities, he said, recognized Canada's natural wish to remain a "white man's country," and to restrain Asiatic immigration; and they did not deny her right to manage her own affairs in this matter, but on the contrary desired Canada to pass such laws in regard to immigration as suited her interests. They felt assured that Canada's sense of her relations to the Empire would prevent her disregarding the obligations which rested upon her. The recommendations in his report were directed to the checking of those influences which tended to promote immigration without regard to the welfare of the immigrant. Such promotion had been the policy of the steamship companies, which had greatly fostered immigration. Their power to do this now, however, was nearly destroyed by the rule which prohibited immigration except on through tickets purchased in the country of origin or adoption, and on continuous journey therefrom to the country of destination. Moreover, in India immigration under contract to labor was prohibited by law, and such immigration could be stopped in Canada by refusing to allow the landing of such immigrants as had come in violation of the laws of their own country. In June, the Canadian House of Commons passed a law providing that only such Chinese students could be admitted as had been students in their own country and came to Canada for the purpose of continuing their education, and imposing a poll tax of \$300 upon them, which, however, was to be refunded after they had completed a year of study in Canada. In the same month an Order in Council was issued for the denial of admission to any Asiatic immigrant who had not at least \$200. An award of \$50,000 was granted early in June to the Asiatics who had suffered in the Vancouver riots of September, 1907.

PARLIAMENT. Parliament assembled on Nov. 28, 1907. Owing to the fact that this was to be the last session before the Dominion election, and that the government intended to introduce a bill amending the federal election laws, as well as other measures of pressing importance, there was a good deal of partisan feeling in the debates, the opposition fighting the elections bill with such persistent determination that the government had to postpone the bill in order to have the supplies voted in the budget in March. The budget contained appropriations for the Transcontinental Railway and for giving effect to the law passed respecting the national battlefields at Quebec. The session, which ended in July, proved to be the longest since Confederation in 1867, and in the quantity and character of the legislation, one of the most important since that event.

Besides the two bills mentioned in connection with the budget, and the Immigration Acts previously described, there were enacted into law an old-age government annuities bill, a civil service reform bill, bills for the prohibition of the sale of tobacco and cigarettes to boys under sixteen years of age, and for the prohibition of the importation, manufacture, and sale of opium for other than medicinal purposes, and a bill providing additional safeguards against noxious ingredients in patent medicines. Sir Wilfrid Laurier introduced a resolution, which the House of Commons passed, extending certain provincial boundaries. By this measure Manitoba acquired

Fort Churchill and York Factory, on Hudson's Bay, Ontario gained some accessions to the north, as far as James Bay, and Quebec acquired the Canadian portion of Labrador. There were also laws passed providing for the purchase of seed grain for western settlers, and for the granting of lands to Canadian soldiers who took part in the South African War. Two laws of special importance to Western Canada were the Manitoba grain act and an act for better grain inspection. They were designed to maintain the highest quality and price of western wheat for export and to facilitate its marketing and transportation, the western farmers having suffered serious financial loss through lack of such supervision and assistance, which these laws provide. Another law passed especially for the benefit of Western Canada was the lands bill, giving pre-emption rights to homesteaders for an additional 160 acres at \$3 an acre (practically increasing the size of the average farm in the Prairie Provinces to 320 acres) and authorizing the construction of the Hudson's Bay Railway, and the release of over 40,000,000 acres of land for settlement.

Very interesting as confirming the success of the work of the Canadian Railway Commission, and pointing out new uses for it, were laws enlarging the scope of the Commission by adding three members to it, and placing telegraph and telephone lines under its jurisdiction. Another law having relation to financial stringency was that amending the Bank Act so as to permit, under certain safeguards, an expansion of the note circulation of the banks during the crop-moving time of the year. The House of Commons pledged financial support to the "All Red" Route (see below) and a resolution was passed in the House, authorizing the government to negotiate with the governments of Australia and New Zealand, with a view to bringing about a speedy consummation of the project. The two most important laws were, however, those amending the existing election laws, and providing for civil service reform. By the first of these, federal officials were appointed to revise Manitoba and British Columbia voting lists, the rights of voters are more effectually protected, and heavier penalties are prescribed for those who exercise undue influence; by the second, appointments and promotions to the civil service will be made after a competitive examination, and the law will be administered by commissioners practically independent of the government. The mining interests of British Columbia were encouraged by a law extending for five years the payment of a bounty on lead ores. The old-age government annuities bill was so framed as not to have too much of the character of a pensions scheme, but was intended, as far as possible, to encourage habits of thrift and economy, insuring to the holders some provision for advanced years. See OLD AGE PENSIONS.

There were also measures which, although successful in the House of Commons, failed to pass the Senate. The chief of these was the coöperative societies bill, which was strongly opposed in the Senate by members who sympathized with certain business interests. It was noteworthy also that the protracted resistance of the Conservative Opposition to the Dominion elections bill, as well as charges of corruption against the government in connection with its disposal of timber limits, caused unusual com-

ment in the press of the country and among the public generally, about the undue length of parliamentary sessions and the waste of time in unnecessary discussion. With regard to the first measure, the length of discussion caused consideration by the government of the necessity of introducing the closure to regulate parliamentary debate, and promote the expediting of parliamentary business.

NEW TREATIES. Secretary Root's visit to Ottawa in January, 1907, inspired confidence in a satisfactory adjustment of the various questions pending between the United States and Canada, and this was strengthened by Ambassador Bryce's visit in February, 1908. Among other points may be mentioned the requirement that no duty should be imposed on goods in transit across parts of the United States and Canada; that the Alien Labor Laws should apply to citizens of the United States and Canada; that reciprocal mine owning rights should be granted; that provision should be made for the conveyance of American prisoners through Canada and Canadian prisoners through the United States; that reciprocal arrangements should be made in regard to wreck-age and salvage; and that no poll tax should be imposed on Canadians temporarily residing in the United States. Besides these there was a question of certain pecuniary claims. On Apr. 11, a treaty was made in regard to the fresh water fisheries, whereby it was provided that uniform regulations shall be made by an international fisheries commission of two persons, one appointed by Canada and one by the United States, to settle questions arising from the fisheries in the frontier waters, and which should last for four years; and on the same day a second treaty was made, for the settlement of all difficulties arising from international boundary questions. Meanwhile, an arbitration treaty with the United States had been under discussion, and an understanding was reached whereby the United States acknowledged Great Britain's right to consult with her self-governing colonies as to the subjects of arbitration, and Great Britain admitted the principle that the United States Congress shared in the treaty-making power with the Executive. This treaty was ratified by the United States Senate toward the end of April. See UNITED STATES, *Treaties*.

At the close of the year the settlement of the pecuniary claims between the United States and Canada was still pending.

The new commercial convention with France which had been under discussion during 1907, but had not been ratified by either government, was ratified by Canada on Apr. 3, 1908. The year passed, however, without its acceptance by the French government. According to its main provisions, Canada extended to a large number of French articles of manufacture the benefits of its intermediate tariff rates, which are ten per cent. less than the general tariff; and the French government, in return, was to give Canada the benefit of her minimum tariff rates on an extensive list of Canadian articles, including food stuffs, agricultural implements, etc.

THE QUEBEC TER-CENTENARY. The project for the celebration of the three hundredth anniversary of the founding of Quebec was discussed in the summer of 1905, and the government authorities were asked to take action in the matter. In May, 1907, a general committee



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THE QUEBEC TRICENTENARY

THE "DON DE DIEU" APPROACHING QUEBEC WITH CHAMPLAIN AND HIS CREW REPRODUCED
FOR THE HISTORIC PROCESSION

on organization was appointed. In Dec., 1907, the Governor-General, Earl Grey, proposed, as a permanent memorial, that the battlefields should be restored, and it was decided to nationalize them and build a parkway around the cliff and a great monument which should dominate the harbor. On March 3, Sir Wilfrid Laurier announced that the celebration of the ter-centenary and the nationalization of the battlefields would take place in July. It was decided that the buildings that had been built on the Plains of Abraham should be removed, and that the battlefields of Sainte Foye and the Plains of Abraham should be included in a national park. The King approved the measure and contributed to its cost. The celebration began on July 19. Representatives of Great Britain, France, the United States, and other foreign countries were invited, and battleships from the fleets of these nations, as well as from Germany, Italy, Spain, Japan, and Argentina, gathered in the harbor. The Prince of Wales, accompanied by the Earl of Dudley, the new Governor-General of Australia, arrived on July 22, having been preceded by Lord Roberts, as representative of the British Army, by the Duke of Norfolk, and others. The living descendants of the Wolfe and Montcalm families, whose ancestors had been so closely associated with Canadian history, were represented. The celebration began with a parade on July 19. July 23 was Champlain Day, in honor of the founder of the city; and a feature of the ceremonies on that day was the sailing to the landing place of a fac-simile of the vessel in which Champlain had arrived. On July 24, the battlefields were dedicated in the presence of nearly thirty thousand soldiers from all parts of Canada, and the war ships in the harbor took part in the ceremonies. For two weeks the city was full of soldiers and illuminations and pageants were held to celebrate the striking events in Canadian history and the deeds of great Canadians like Champlain, Cartier, Laval, Frontenac, and Montcalm. One of the pageants, which was given expressly for the Prince of Wales, displayed the armies of Wolfe and Montcalm marching across the Plains of Abraham. In his reply to an address from the city, the Prince congratulated his hearers on the presence of the American and French representatives as an evidence of good will between their countries and Canada and Great Britain. The effect of the celebrations was said to have been a great step toward the cementing of the Dominion and the Empire and the promotion of friendly feeling between them and the United States.

THE "ALL-RED" ROUTE. At the Imperial Conference in London in 1907, Sir Wilfrid Laurier had carried through a resolution in regard to an "all-red" line of British steamships which should connect Great Britain and the self-governing colonies with the Far East, giving a fast steamship service between Liverpool and Melbourne, and a fast train service across Canada to Vancouver, B. C. The negotiations begun in that year were continued in 1908, and were upheld by Lord Strathcona and other capitalists. It was announced in March that the project called for the following subsidies: Great Britain, £500,000; Canada, £325,000; New Zealand, £100,000; and Australia, £75,000. In a speech at the meeting of the Royal Colonial Institute on April 7, Lord

Strathcona described the nature and purpose of the route, which he said was to constitute a British highway between Great Britain, New Zealand, and Australia, by way of Canada, the objective points being wholly in British territory and under British control. Among the arguments that were urged on its behalf were the following: Improvement of the communications between the United Kingdom and Canada by giving a more rapid service; the inducement that it would offer to American travel by its quicker service to the United States and its geographical advantages, and to that part of Canadian travel which now passes through New York; faster service to New Zealand and Australia; the provision of an alternative route to the East which could be used by the military; advantages to the Empire's position in both oceans in war and in trade. It was required that the latest and best types of steamships should be employed. It was pointed out that if such vessels as the *Lusitania* and the *Mauretania* were used, there would be a saving of nearly two days in time. Sir Wilfrid's original plan called for a four-day service to Halifax, an equal time for crossing Canada, and a sixteen days' service to Sydney; but this was criticised by Sir Joseph Ward, of New Zealand, as not fast enough on the Pacific. He declared that New Zealand would not grant a subsidy unless the passage from Vancouver to New Zealand was reduced to twelve days, and unless New Zealand had the first port of call in Australasia. It was generally understood that the northern route would be taken, the Canadian Pacific having shown that such a route was commercially possible, and having already an "all-red" route, though slower than was required. On July 9, 1908, Sir Wilfrid Laurier proposed a resolution declaring that Canada would assume her share of the subsidy, and urging that the other colonies take action without delay. It was passed by a vote of 100 to 47. New Zealand was the only other colony that had thus far made a definite proposal.

THE ELECTORAL CAMPAIGN. The campaign began in August. The Liberal programme was simply the laying of emphasis on the work accomplished by the party and the necessity of continuing the Liberals in power in order to carry out what they had begun. They asserted that no period could compare in point of prosperity with the twelve years of the Laurier government that had just elapsed; and they pointed to the great public works undertaken, and to the fact that the country was on a better footing than ever before as regards immigration, being indeed the special destination of immigrants, drawing settlers of the best classes. The programme of the Conservatives consisted mainly in the charges of graft and corruption, including bad appointments, corrupt administration, and misuse of the public moneys and electoral power. Thus, as in the United States, the campaign hinged rather on matters of personal fitness for administration than on principles of policy. One of the main reasons for which it was urged that the government be retained was that it might complete the Transcontinental Railway. As to the tariff policy, Sir Wilfrid Laurier declared that the Liberals desired reform, not revolution, and that any changes in the tariff must be gradual and cautious. The date of the general election was fixed on Oct. 26.

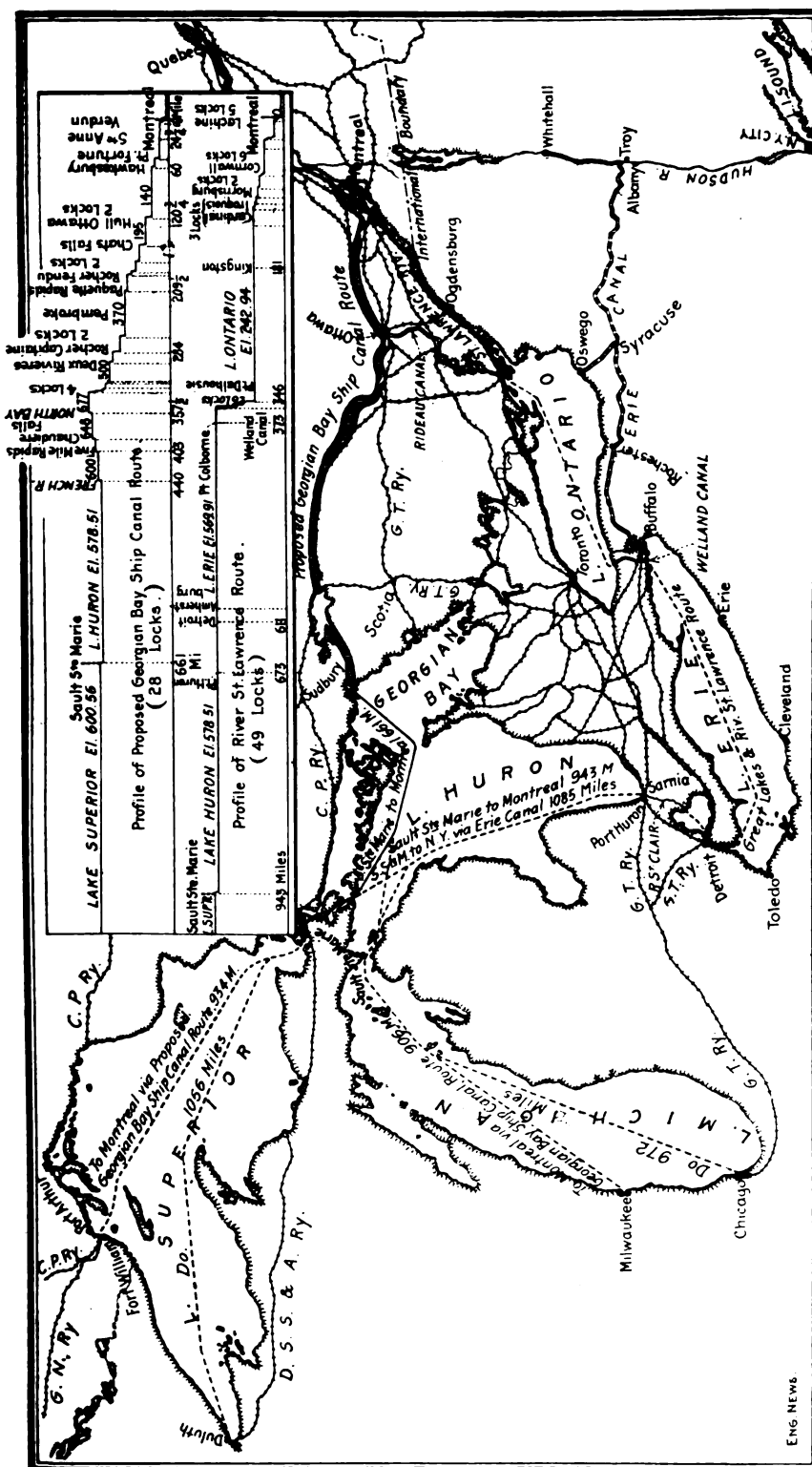
WOOLEN DUTIES. Representatives of the woolen industries demanded an increase of the tariff, protesting against the preference of 33 1/3 per cent. to Great Britain, which they declared at this period of depression was excessive. Duties, they said, must be increased if the industry was to continue and the 4,500 workmen engaged in it were to retain their employment. At a meeting of the Canadian Manufacturers' Association in September, the attitude of the government was severely criticised, and it was declared that the woolen industry was gradually disappearing. During the previous session of Parliament the woolen manufacturers had demanded an increase, and the matter came up before the Commission of 1906, which had made some concessions; but they now insisted on further concessions. In reply to these demands, the Premier said that it must be remembered that he represented not only the manufacturers but the consumers. He did not attach much importance to the charge that British goods were shoddy and ill-made, asking why, if Canadian consumers desired that class of goods, the Canadian producer did not manufacture them. He favored the appointment of a commission to investigate the condition of the industry in England, Germany, and other countries, and said that in fact a commissioner had already been sent to England for that purpose. He contended that the tariff, which was only two years old, should have a fair trial. The proposal of a permanent tariff commission seemed to him questionable, but he said it would receive careful attention.

THE ELECTIONS. During the latter part of the campaign, the discussion had been mainly on the question of the honesty of the government. The charges of graft and corruption were vigorously made and as vigorously denied. Sir Wilfrid Laurier declared that the prosperity of the country had been largely due to the immigration policy, and especially to the high class of settlers that came from the United States. As to the Grand Trunk Railway, he said that although, as he had repeatedly declared, the contract was an unwise one, the Conservative party if it came into power would be obliged to carry out the plan, even though it had not originated with them. Parliament was dissolved early in October. As a result of the election of Oct. 26, the position of parties was as follows: Liberals, 134; Conservatives, 86; exclusive of the returns from the Yukon district, which were not yet known, but were afterward found to add to the government's strength. All the Liberal members of the government were returned with the exception of Mr. Templeman of Victoria. This was interpreted as a popular endorsement of the government policy, the majority being only slightly reduced. Some charges of unfairness and corruption were made toward the close of the year. A letter of Sir Wilfrid Laurier to a fellow candidate, approving the latter's promise to the members of the Civil Service that the government if returned would increase their salaries, caused much adverse comment as a violation of the Dominion Elections Act, which declared it an indictable offence to make any gift, loan, or promise for the purpose of influencing a vote. Protests were also made against the system of pairing off petitions, as practiced especially in Ontario and Nova Scotia. "Pairing off" is a practice according to which repre-

sentatives of opposing party organizations agree, before the time for filing petitions against the return of members of Parliament alleged to be corruptly elected has expired, to refrain from filing such petitions, one side agreeing not to use evidence against the other in consideration of a like favor from the other side. On Dec. 4, delegations from both parties met at Toronto and paired off petitions until only four were left. The practice was sharply discussed in the newspapers. Voters were accused of repeating in an Ontario constituency. Charges of bribery and corruption in the Civil Service took definite form in October and November, and were brought directly against the Marine Department. The government began an investigation, and as a result of this several officials were suspended. The commissioner who conducted the investigation at Quebec in November received testimony incriminating others. On Nov. 6 a witness testified that he had paid bonuses to twenty-four employees of the Marine Department, including captains, engineers of government vessels, inspectors, etc. Later, twenty-eight of the government employees were suspended by the Minister of Marine. The investigation of the Civil Service scandals continued in December. A report was shortly afterward made exonerating cabinet ministers, but finding certain subordinate officials guilty of misconduct. Some of the employees who had been suspended were permanently removed from the Civil Service.

CHURCH UNION. The movement for organic union of the Presbyterian, Methodist, and Congregational churches in Canada made noteworthy progress during the year. On Dec. 11 the joint committee representing those churches closed their fifth annual conference, and formally reported that, after due consideration of differences of polity and doctrine, there exists no obstacle in the way of organic union of these three religious denominations. It was said by some of those engaged in the deliberations that the work might be accomplished during 1911, and that the church resulting therefrom would be named "The United Church of Canada." So remarkable was the resolution passed by the joint committee considered to be, that one of its members gave out a statement that it had done more in the direction of organic church union than anything that had been accomplished since the Reformation.

INTERNATIONAL WATERWAYS. In June the Canadian members of the International Waterways Commission presented their report of work during 1907. In reference to the proposal to erect a dam or dams in the Niagara River, with a view to maintaining the level of Lake Erie, the Commission agreed that no works should be authorized which would lower the levels in Lake Ontario or the St. Lawrence River. With regard to power development at Niagara Falls, the Canadian Commissioners were of opinion that such power development would affect the level of Lake Erie and were therefore objectionable, and that the proposed diversion of 10,000 cubic feet per second from Lake Erie to Jordan River would reduce the lake level by six inches. The joint commission agreed that the scenic beauty of Niagara Falls should be preserved, that the diversion of more than 36,000 cubic feet of water per second on the Canadian side, and of more than 18,500



ENG. NEWS.

From the "Engineering News," New York

cubic feet on the United States side, would injure Niagara Falls as a whole.

In July the Minister of Public Works at Ottawa presented the report of the government survey of the Georgian Bay Canal. This affirmed that the canal, worked out on a basis of a 22-foot waterway for 400 miles between Georgian Bay and Montreal, could be built in ten years at a cost of \$100,000,000, and would be a saving of 282 miles as compared with the St. Lawrence route, and of 424 miles as compared with the Buffalo and New York route.

Among the notable events of the year were forest fires which destroyed the town of Fernie and several villages in British Columbia, inflicting a heavy loss of life and property. (See BRITISH COLUMBIA.) Sir Charles Fitzpatrick, Chief Justice of the Canadian Supreme Court, was appointed by the Imperial Government as one of the four representatives of Great Britain on the Permanent Board of Arbitration at The Hague to settle international disputes. Rural mail delivery was put into effect in September in certain districts of Canada. A great strike on the Canadian Pacific Railway in August, whereby over 6,000 mechanics in the various shops of the company left work, was settled without much loss. See STRIKES AND LOCKOUTS. The appointment of a British naval officer to command the Canadian marine service was looked upon as presaging an advance toward the development of a naval militia, as there are now seamen in training along British naval lines on the cruiser *Canada* and on some other vessels of the fleet of protective cruisers.

CANALS. The break in the bank of the Illinois and Michigan Canal on Sept. 2, 1908, 12 miles below Joliet, Ill., caused the draining of the 20-mile section between the Jackson street dam at Joliet and the Channahon dam, compelling the shutting down of the mills because of lack of power, and inundated the adjacent land. The canal extends from Bridgeport, on the Chicago River, to La Salle, on the Illinois, a distance of 100 miles.

The Evanston branch of the Chicago Drainage Canal, which begins at the lake shore in Wilmette, half a mile north of the Evanston boundary, and extends through the northwestern part of that section in a southerly direction, to a junction with the north branch of the Chicago River at Lawrence, was put under construction in April. It will be 100 ft. wide at the surface, 13 1-2 ft. deep, and 8 1-4 miles long, with a strip 250 ft. in width on each side, to be used as a parkway, and will require in its construction the excavation of 3,000,000 cubic yards of material. A spillway is also to be built in connection with the canal, at some point between the Desplains River and Willow Springs, having been made necessary by the spring floods, causing a flow from the river through the old Ogden ditch to the Chicago River, which in many cases reverses the direction of the current, and forces the Chicago River to discharge its sewage into Lake Michigan, from which the drinking supply is taken. Such a reversal of flow was produced by a heavy rainfall and melting snow on Mar. 6, making it necessary to open the bear-trap dam at Lockport, thereby increasing the discharge through the drainage canal from 250,000 to 600,000 cubic feet per second and reestablishing normal conditions.

NEW YORK BARGE CANAL. During the fiscal year ending Sept. 30, 1908, \$4,234,209.20 was

expended on the \$101,000,000 improvement of the Erie, Champlain and Oswego Canals, which brings the total to date up to \$8,311,432.14, and for which thirteen million in bonds have been issued. Of the above total, \$5,525,494.17 has been spent on the Erie Canal, \$2,396,065.46 on the Champlain, and \$389,872.51 on the Oswego. The following tabulated statement shows the condition of the work on the different contracts on Jan. 1, 1909.

Contract Number.	Total Value of Work		Percentage of work done to Jan. 1, 1909
	Put under Contract	Done to Jan. 1, 1909	
1.	\$603,898*	449,310	74.0
2.	906,896*	694,390	76.7
3.	657,273*	581,830	88.6
4.	729,568*	446,980	61.2
5.	375,872*	125,820	33.5
6.	1,024,257*	710,020	69.2
7.	101,930*	82,540	81.0
8.	1,505,362*	448,890	29.8
9.	747,301*	123,610	16.5
10.	1,103,023*	248,890	22.5
11.	1,354,864*	531,910	39.3
12.	3,391,834*	477,510	14.1
13.	23,674	—	—
14.	2,947,838*	762,030	25.8
15.	1,523,820*	817,320	53.6
16.	69,077*	6,270	7.6
17.	836,782*	57,560	6.9
17.	†(806,455)*	269,140	33.4
18.	855,002*	325,270	38.0
19.	891,401*	171,870	19.3
25.	1,717,649*	524,430	30.5
26.	59,795	8,640	16.1
27.	968,295*	378,650	39.1
31.	829,770	23,590	3.0
34.	24,449*	22,303	100.0
35.	745,968*	91,900	12.3
40.	2,166,298	—	—
41.	281,330	—	—
45.	467,514	139,690	29.9
46.	1,212,833	—	—
47.	1,262,638	—	—
55.	905,347	230	—
60.	1,349,084	122,860	9.1
61.	1,047,994	4,330	0.4
64.	1,290,492	38,710	3.0
66.	750,685	12,560	1.7
68.	1,018,323	2,170	0.2
Totals	\$35,746,136	\$8,101,823	—

* Includes all alterations in force to date.

† Re-let,—not included in total.

The Cornwall Canal, at Cornwall, Ontario, broke through its banks on June 23, carrying with it the piers of the single-track, circular drum-bearing, 240 ft. draw span of the New York & Ottawa Railway. The canal, which starts at Cornwall, 60 miles west of Montreal and enters the river St. Lawrence again at Dickinson, 12 miles west, is 16 ft. deep and 95 ft. wide. The break resulted from a small leak in the bank, which developed until a 160 ft. breach had been made.

CANCER. The search for the specific cause and cure for cancer continued unabated during 1908. Investigations, both laboratory and statistical, were conducted in the United States, England, France, and Germany. In England the third scientific report of the labors of the Imperial Cancer Research Fund was issued, and contained evidence of a vast amount of experiment and observation. The question of the causal connection between irritation and can-

cer received much attention. A wide study of the cases in all parts of the world showed the congenital or embryonic theory of the origin of carcinoma to be without foundation. Thus cancer of the skin of the abdomen is practically unknown in Europe, but common in Kashmir. This is not due to the presence of embryonic germs in the abdominal cuticle of the Kashmiris, but to the irritation from wearing a charcoal oven about the waist. Again, cancer of the floor of the mouth is rare in European women, although not uncommon in men; but in East Indians it is frequent, owing to the fact that in India women chew betel-nuts and sleep with the cud in the mouth at the exact spot where the cancer starts. In needlewomen melanotic sarcoma often begins in the fingers, at the site of chronic needle traumatism. Laboratory investigation of mouse cancer, moreover, developed no evidence that these tumors are increased by inbreeding, and the theory of hereditary liability, though not disproved, is much weakened.

The French Cancer Research Association met in June and July. The sessions were thrown open to the public and were well attended. Experiences at the Pasteur Institute were cited to disprove the assumption of local heredity from consanguinity as an explanation of cancer, at least in mice. Everything pointed to a local cause of contagion. When spontaneous tumors appeared they almost always occurred in the dirtier cages, infected with vermin, especially bedbugs, the latter also infested with parasites, *acari*, which they carry from mouse to mouse. The microbes revealed in these tumors the debris of large parasites, nematoid worms and *acari*. The theory that certain houses or localities are cancer infected was investigated by Fillaissier, who, in examining the Paris sanitary reports, found twelve houses, in each of which 2 deaths occurred, 26 deaths in 5 workhouses, and 4 deaths in one religious institution. In 1890, Arnaudet selected 54 houses in one street 150 metres long; in 17 of these houses there were 21 cases of cancer, all of them in the same part of the street. There lived in Oyonnaux a woman with cancer of the breast. The dressings were thrown into a stream near by. Two lodgers in the same house developed cancer and two neighbors, who drank water from the stream became infected. These and similar data are the subject of scattered reports, but are too meagre to base definite conclusions upon.

Gaylord, of the New York State Cancer Laboratory, Buffalo, N. Y., conducted a great number of experiments on mice, to determine the resistance of tumor cells to low temperatures. The tumors which developed from material frozen with liquid air presented the histological characteristics of the transplanted tumor from which the material was taken. Gaylord holds that these experiments demonstrate the great resisting power of cancer cells to low temperatures, and does not agree with Moore and Walker, who performed similar experiments, that these phenomena prove the presence of a virus, although he believes in the existence of such a virus.

Kelling has studied the possibility of diagnosing cancer from the patients' serum, both with the precipitin test (See BLOOD) and the hemolytic test, and believes he can determine the presence of cancer by this method alone. He asserts that these biochemical reactions

unfailingly reveal malignant tumor formation, whether primary or recurrent. He has applied the tests to 600 cases, the precipitin in 200, and the hemolytic in 400. More than a third of the patients had cancer and in 28 cases the diagnosis was made solely by these tests. Kelling believes in the origin of cancer from embryonal cells from some other species and makes the serum for his tests on this assumption, using beef, sheep, pig, or poultry livers and extracts of chicken and pig embryos to prepare the six serums for the precipitin test. The chopped substance is kept in glycerine macerated, filtered and diluted to one part in one thousand of normal salt solution. One of these six serums becomes cloudy on addition to half the amount of the patient's serum in case of cancer, but never otherwise. Wyss, investigating the cause of X-ray cancer, concludes that repeated exposures to this influence causes the blood vessels to become gradually smaller, and finally obliterated. The epithelial cells are then obliged to obtain their nourishment directly from the adjacent cells or tissues, and thus assume the character of parasites. This explanation would apply also to other kinds of cancer, in which interference with blood supply may be the primal cause.

The net result of the year's investigation seems to add proof that the disease is not hereditary; that it occurs in tissues subject to chronic irritation, mechanical, chemical, or due to filth; that it is communicable by direct contact; and that spontaneous arrest or cure may take place through the development of some immunizing principle or antibody in the blood. No new therapeutic measures were advanced during the year.

CANET, GUSTAVE. A French artilleryist, died on Oct. 7, 1908. He was born in Belfast, in Sept. 1846, and was educated at the college there, at the Strasbourg Lycée, and at the Central School of Arts and Manufactures. He made many improvements in artillery, gunpowder and war appliances, his name being associated in particular with the artillery developed and manufactured at the famous Schneider Works at Le Creusot.

CANNING, SIR SAMUEL. An English electrical engineer, died on Sept. 24, 1908. He was born in 1823, was educated at Salisbury, and was engaged chiefly as a railroad engineer from 1844 until about 1852, when he became interested in the development of submarine telegraph cables, and especially in devices for laying, buoying, and recovering them. He assisted in laying the cable from Cape Breton Isle to Newfoundland in 1856, and a year afterward was one of the chief assistants to Charles Bright in laying the first Atlantic cable. He superintended the manufacture and laying of the Atlantic cable of 1865, which parted and was lost, and that of 1866, which was successfully laid. In the latter year he also commanded the expedition and devised the appliances with which the cable of 1865 was recovered and spliced, after which the laying was continued and completed. For these achievements he was knighted in 1866, and received other honors.

CANNING OF FRUIT. See HORTICULTURE.

CAPE COLONY. A British possession in South Africa. Area, including dependencies, 276,995 square miles. Population (1904), 2-

409,804, including 579,741 whites and 1,830,063 colored; estimated in 1907, 2,507,500. In 1907 there were 10,554 marriages, 60,415 births, 35,491 deaths, 29,767 immigrants, and 39,550 emigrants (1906: immigrants, 34,041; emigrants, 40,180). In Feb., 1907, a law was adopted requiring every immigrant to be in possession of visible means of support. The immigration authorities consequently insisted that the immigrant bring with him £20 in money or have a contract for a position. The population of the principal cities in 1904 was: Cape Town, 77,668 (with suburbs, 169,641); Kimberley, 34,331; Port Elizabeth, 32,959; East London, 25,220; Graham's Town, 13,877; Uitenhage, 12,193; Paarl, 11,293; Graaff-Reinet, 10,083.

EDUCATION. On June 30, 1908, there were 3,726 elementary schools, with 174,709 pupils. There are five government-aided colleges with 800 students, and an examining and degree-conferring university at Cape Town.

AGRICULTURE. Of the 177,376,660 acres comprised in the Colony, 43,568,697 acres had not been alienated in 1907. The production of wheat in 1907 was 2,000,000 bushels; maize, 3,000,000 bushels; oats, 3,000,000 bushels. There were about 30 flour mills, but South Africa does not produce wheat enough to keep six of them busy, and large quantities of wheat are imported. In 1907 the wheat imports amounted to 4,898,421 bushels, of which 3,971,576 came from Australia and New Zealand, 576,026 from Argentina, 117,600 from the United States, and 24,152 from Canada. The imports of wheat flour and meal in 1907 amounted to 33,990,528 pounds, of which Canada supplied 13,069,619, Australia 14,449,661, the United States 4,033,180, and Argentina 2,069,973. The grape-vine is extensively cultivated. In 1907 there were produced 2,541,613 pounds of raisins, 45,566 leaguers of wine (1 leaguer = 128 gallons), 10,673 leaguers of brandy, and 93,238 gallons of vinegar. The exports of fresh fruit—pears, peaches, plums, nectarines, grapes, melons, apricots, apples, pines, quinces, pomegranates—amounted to 172,738 cases in the 1908 season, against 82,355 cases in 1907 and 59,866 cases in 1906. Turkish tobacco has been successfully planted. In 1904 there were 1,934,390 cattle, 419,963 horses and mules, 11,818,829 sheep, 7,162,463 goats, 385,945 pigs, and 357,970 ostriches. The sheep farms frequently range from 3,000 to 15,000 acres and upwards. Wool, mohair, ostrich feathers, and butter are important products. Expert dairymen are employed by the government to travel among the farmers and instruct them in the best methods for making butter and cheese. The improvement in the domestic products has resulted in a decreased import of these articles. Several large coöperative creameries and butter factories have been established, aided by government loans at 4 per cent. interest. The value of the agricultural production of 1907 was estimated as follows: Cereals, \$7,213,939; vineyards, \$1,313,142; animal products, \$41,752,233; other products, \$4,866,000; fruit, \$378,127; giving a total of \$54,210,000. The value of live stock, based on estimates for natural increase since 1904, was estimated at \$127,804,000.

MINING, ETC. The mineral production of 1907 included: Diamonds, 2,580,954 carats, valued at £6,315,289; coal, 144,040 tons (2,000 lbs.

each), valued at £118,776; copper ore, 78,935 tons (2,240 lbs. each), valued at £601,824; tin ore, 144 tons (2,240 lbs. each), valued at £14,400; asbestos, 604 tons (2,000 lbs. each), valued at £9,060. In 1908 a rich tin formation was struck in the Tigerberg district; copper was discovered in the Upington district, in the northwest of the Colony, on the Orange River, the assays yielding 30 per cent. of metal; copper-nickel bearing ore was discovered in the Insizwa range, East Griqualand, near Mount Ayliff, the assays varying from 5 to 14 per cent. for copper and from 1 to 8 per cent. for nickel. In 1904 there were 2,527 industrial establishments, including flour and saw mills, tanneries, breweries, tobacco factories, etc., with 30,318 employees, plant and machinery valued at £2,180,336, and an annual product valued at £9,040,579.

COMMERCE AND COMMUNICATIONS. Cape Colony is a member of the South African Customs Union (See BRITISH SOUTH AFRICA). The special imports and exports in 1907 amounted to £16,928,000 and £47,087,000 respectively, against £18,200,124 and £39,629,679 in 1906. In 1907 the imports of foodstuffs were valued at £3,512,017; raw materials, £965,647; manufactures, £10,676,865. The principal exports in 1907 were: Gold, £28,228,000; diamonds, £8,983,000; wool, £2,535,000; ostrich feathers, £1,820,000; mohair, £915,000; hides and skins, £809,000; animals, £775,000; copper ore, £577,000; explosives, £501,000; cereals, £426,000. The trade with the principal countries of origin and destination in 1907 was as follows:—

From and to	Imports.	Exports.
Great Britain	£8,824,000	£42,885,000
Germany	843,000	709,000
British South Africa	2,408,000	2,994,000
Australia	1,066,000	10,000
United States	1,143,000	83,000

In 1907 the ports were entered by 2,607 ships of 11,653,454 tons (9,989,232 British), and cleared by 2,631 ships of 11,664,684 tons (9,995,149 British). The merchant marine consisted on Dec. 31, 1907, of 54 vessels, aggregating 5,842 tons. The length of government railways on Dec. 31, 1907, was 3,254 miles; of private railways, 461 miles. The capital expenditure on government railways to the end of 1907 was £31,919,340, the profit for the year being over 2½ per cent. The length of telegraph lines in 1906 was 8,200 miles.

GOVERNMENT, FINANCE, ETC. The executive power is vested in a Governor and Executive Council, appointed by the Crown, and a responsible ministry. The legislative power is vested in a Legislative Council of 26 members, elected for seven years, and a House of Assembly of 107 members, elected for five years. The franchise in both cases depends on a slight property qualification, but members of the Legislative Council must have immovable property to the value of £2,000, or movable property of £4,000. The number of registered electors in 1905 was 142,939. The colony proper is divided into 81 divisions, each with its elective council. The dependencies are divided into 30 districts. The colonial revenue is obtained chiefly from customs duties, licenses, public lands, and services rendered by the natives; in 1906 the last item amounted to

£4,559,435. In 1907-8 the total revenue was £6,981,308, and the expenditure, £7,955,156. The public debt at the end of 1907 stood at £46,267,290, nearly the whole of it contracted for public works. The military force of the colony at the end of 1907 consisted of 611 Cape mounted riflemen, exclusive of 57 natives, 5,093 volunteers, and 5,666 cadets. The Cape police numbered 1,265, of whom 181 were natives. In 1908 the Governor was Sir Walter Francis Hely-Hutchinson; the Premier, John X. Merriman.

HISTORY. In January, elections for the Legislative Council were held, giving a strong majority to the opposition, largely owing to the power of the Afrikaner Bund, and Dr. Jameson, who had been Premier since 1904, resigned (Jan. 31) and was succeeded by Mr. J. X. Merriman, the leader of the Bund and a strong advocate of federation of the five South African colonies, subject to the right of each to make its own tariff. He declared that the elections were a mandate to form a United South Africa and to adjust the finances of Cape Colony, and that the government would do its utmost to further these measures. The March elections to the Assembly also showed a heavy vote, and increased the power of the South African Party. As constituted after the January and March elections, the parties in the Houses of Parliament were distributed as follows: Legislative Council—South African Party, 15 (a gain of 5), Unionist, 5 (a loss of 5), Independents, 1; the Assembly—Ministerialists, 69 (a gain of 19), Unionists, 33, Independent, 5. An emergency session of the new Parliament was opened on Apr. 22 by the Governor, Sir Walter Hely-Hutchinson, to authorize expenditures to the close of the current financial year. At the beginning of the regular session, June 19, the Governor announced that the revenue and expenditure having failed to balance, Parliament must take measures to restore the equilibrium. Owing to the condition of the finances, he said, a number of public works had to be postponed. On June 30, the budget was introduced. The deficit was placed at £901,000. To meet this the government proposed the extension of the income tax to all incomes of £50 or over (afterwards raised to £100); the suspension of the sinking fund; the reduction by five per cent. of the salaries of civil service officers and members of Parliament; and the imposition of stamp duties and of an estate duty on absentee property owners. The Assembly passed the income tax proposal on Aug. 13th, but rejected the estate duty, in place of which the government proposed an extension of the present succession duty. The question of federation was debated in June and the Assembly passed a resolution favoring the early union of the colonies. In the sessions of the constitutional convention which met in the latter part of the year to draft a plan for a South African Union, the representatives of Cape Colony made it apparent that it could not go with the other colonies on the subject of the native franchise. In Cape Colony civilized natives vote; in the other colonies they do not, nor is there any disposition to give them the ballot. The probable outcome under federation appeared to be the retention by each colony of its own franchise, with guarantees to the Cape Colony against hostile future legislation in that direction. The wine bill, to facilitate the sale of light wines by the municipalities passed its third reading on Sept. 8th. It was

criticized on account of its omission of any local option clauses. See **BRITISH SOUTH AFRICA.**

CAPERS, ELLISON. A Protestant Episcopal Bishop, Diocese of South Carolina, died on Apr. 22, 1908. He was born at Charleston, S. C., on Oct. 14, 1837, and attended the South Carolina Military Academy, where after his graduation in 1857 he was for a short time an assistant professor. He joined the Confederate Army at the outbreak of the Civil War, entering as major and later becoming brigadier-general. In 1867 he was elected Secretary of State of South Carolina, but was forced out of office by the Reconstruction Act, one year later. He was ordained in 1867 and became rector of Christ Church, Greenville, where he remained, with the exception of one year, until 1887, when he went to Trinity Church at Columbia, S. C. In July 1893 he was consecrated seventh bishop of South Carolina, having previously declined (1886) the election as bishop of Eastern Maryland.

CAPE VERDE ISLANDS. A group of 14 islands in the Atlantic Ocean, west of Africa, constituting a Portuguese colony. Area, 1457 square miles. Population in 1900, 147,424 (3,856 whites). Porto Grande is the capital. Sugar, coffee, tobacco, indigo, millet, and southern fruits are cultivated. The imports and exports in 1906 amounted to 2,092,540 and 392,479 milreis, respectively (1 milreis = \$1.08). The revenue and expenditure for 1907-8 were estimated at 395,050 and 423,806 milreis respectively. The Governor in 1908 was B. S. Macedo.

CAPITAL PUNISHMENT. See **FRANCE** under *History*.

CARLOS I. King of Portugal, was assassinated in the streets of Lisbon, on the evening of Feb. 1, 1908. He was born in Lisbon, on Sept. 23, 1863, the oldest son of King Luiz I. and Princess Maria Pia of Savoy; married Maria Amelie, daughter of the Count of Paris, in May, 1886, succeeded to the throne upon the death of his father, on Oct. 19, 1889, and was crowned on Dec. 28. From the outset King Carlos's reign was a troubled one. He had at once to deal with the delicate question of boundaries between the Portuguese and English colonies in Southeast Africa, and his obviously friendly attitude toward Great Britain did not please his people. The financial and economic condition of Portugal was bad, and grew steadily worse, thanks to secret alliances between the party in power and the leaders of the nominal opposition. Under this system corruption of all kinds flourished, the burden of taxation grew constantly heavier, and the public debt rapidly increased. For all this King Carlos was held at least indirectly responsible by an increasing number of his subjects. In 1892, the new cabinet under Ferreira confronted the absolute necessity of increasing taxation and cutting down expenditures, but though the King aided in this retrenchment by assenting to a reduction of the civil list by which 20 per cent. of the income of the royal family was cut off, and even issued a royal decree reducing the interest on the public debt, his popularity was not enhanced; and in 1893 an attempt was made to assassinate him. The establishment in 1905 of the tobacco monopoly in favor of the government intensified the discontent, especially when it became apparent

that public officials were growing rich from this new source of public plunder.

In May, 1906, João Franco formed a new cabinet, and at once instituted a series of sweeping reforms in the interest of public economy and official integrity, only to be met, of course, by violent opposition from the office holders. King Carlos supported all of Franco's measures, and stood resolutely behind him in the enforcement of his reform policies, and in May, 1907, when the Chamber was dissolved, virtually proclaimed a dictatorship, vesting Franco and his associates with enormous power. With the stoutly avowed approval of Carlos, Franco used his dictatorial powers with the utmost ruthlessness, and with the result that both incurred the deadly hatred of the office-holding corruptionists, who grew desperate under the relentless reform methods of Franco. The assassination of Carlos and his son was accomplished while the royal family were being driven, in an open carriage, across the city, on their return from a fair at Villa Viçosa. As the carriage—which had no escort of troops or police—reached the centre of the Praco do Comercio, one of the chief squares of the city, the party were set upon by the assassins, some of whom stopped the horses, while others opened fire with carbines which they had concealed under their cloaks. The King was struck three times, and finally almost instantly killed by a ball which severed the carotid artery. The Crown Prince received wounds from which he died within a few minutes, and Prince Manuel was slightly wounded. During the assault, the Queen displayed great bravery, attempting to shield her sons with her own body, and even trying to beat off one of the assassins by striking him repeatedly in the face with her bouquet of roses. In the affray, three of the assassins were killed, and several persons were wounded by the soldiers and police. LUIZ PHILIPPE, Duke of Braganza and Crown Prince of Portugal, who was also almost instantly killed, was born in Lisbon, on Mar. 21, 1837. He had displayed many of the amiable qualities of his father, and also considerable tact and discretion in the political matters that had been entrusted to him. See PORTUGAL, and MANUEL II.

CARMACK, EDWARD WARD. An American politician, was assassinated at Nashville, Tenn., on Nov. 9, 1908. He was born in Sumner County, Tenn., on Nov. 5, 1858, began the practice of law at Columbia in that State, was elected to the Legislature in 1884, and subsequently became interested in journalism. He edited the *Nashville American* from 1888 to 1892, and in that year became editor of the *Memphis Commercial*. He represented the Memphis district in Congress in 1897-1901, and was United States Senator from Tennessee from 1901 to 1907. In the Senate he made a reputation as a brilliant debater, and was one of the strongest opponents of the administration policy in the Philippines. He was defeated for reelection in 1907. His last service in the Senate was in "talking out" the session of 1906-7 to prevent the final passage of the Ship Subsidy Bill. In 1906 he made a bitter contest against Governor Patterson for the Democratic nomination for governor on the platform of state-wide prohibition, but was defeated. His assassination by Robin J. Cooper on the streets of Nashville was supposed to have been caused by bitterness engendered by this fight (see TEN-

NESSEE) and intensified by editorials published in the *Tennessean*, of which Senator Carmack was editor.

CARNEGIE FOUNDATION. See UNIVERSITIES AND COLLEGES.

CARNEGIE INSTITUTION OF WASHINGTON. An institution established in 1902 by endowment from Andrew Carnegie for the encouragement of investigation, research, and discovery. The original endowment, \$10,000,000, was increased in December, 1907, by \$2,000,000 additional. The Institution maintained during 1908 a desert botanical laboratory at Tucson, Arizona; a station for experimental evolution at Cold Spring Harbor, New York; a marine biological laboratory at Tortugas, Florida; a department of terrestrial magnetism and a geophysical laboratory at Washington, D. C.; a solar observatory on Mt. Wilson, California; and departments for historical research, economics, and sociology. A nutrition laboratory at Boston, near the Harvard Medical School, was also completed during the year, while an appropriation was made to build a non-magnetic sailing vessel with auxiliary power for magnetic observations on the Atlantic Ocean. The horticultural work of Mr. Luther Burbank and a department of astrometry were also included in the major projects of the Institution. A large number of minor projects and research associates and assistants also received allotments. The publications of the Institution since its foundation have numbered 120, and of these, twenty-eight volumes with 2,485 quarto and 4843 octavo pages were published during the year 1907-8. At the annual meeting of the Board of Trustees in Dec., 1908, Dr. Charles W. Eliot of Cambridge, Mass., and Mr. Martin A. Ryerson of Chicago were elected to fill vacancies in the board. Dr. Robert S. Woodward is the president of the Institution.

CARNEY, WILLIAM H. A Civil War veteran, color-sergeant of the famous Fifty-fourth Massachusetts, the first negro regiment to be enlisted in the Civil War, died at Boston in Dec., 1908. He had been employed there as a messenger in the State House for many years. Carney carried the national flag in the assault on Fort Wagner, S. C., on July 19, 1863, and reached the parapet of the fort by the side of Colonel Shaw who was killed there. Although twice wounded he never lost his hold on the colors.

CAROLINE ISLANDS. A group of islands in the eastern Pacific, north of New Guinea and southeast of the Philippines, a German possession. Area, including the Pelew Islands to the west, 560 square miles. Population, 41,400. In 1907 there were 137 whites (83 Germans). In 1906 the imports amounted to 85,000 marks; the exports, chiefly copra, 427,000 marks. The Caroline and Pelew Islands are attached to German New Guinea (q. v.). They are divided for administrative purposes into the Eastern Carolines, with the seat of government on the island of Ponapé, and the Western Carolines (including the Pelew Islands and the Ladrone Islands (q. v.), with the seat of government on the island of Yap.

CASTRO, CIPRIANO. See VENEZUELA; HOLLAND; UNITED STATES.

CATHOLIC UNIVERSITY OF AMERICA, THE. A Roman Catholic institution of higher learning at Washington, D. C., founded in 1885.

It has the faculties of philosophy, letters, sacred science, law, and sciences. In 1902 an extensive undergraduate department was opened to courses leading to the degrees of A.B., B.L., B.S., Ph.B., etc. The following non-affiliated undergraduate colleges are connected with the University; Marist, Juniorate, and the College of St. John Canty, just established. There were in 1908 224 students and 31 professors. The library contains 52,565 volumes. The total productive funds, benefactions, and receipts of all kinds at the end of the fiscal year, ending June 30, 1908, amounted to \$2,378,541.89; the income from endowment funds amounted to \$24,971.82.

CATTLE. See STOCK RAISING.

CAUSEWAY. A concrete causeway across Galveston Bay was proposed, during 1908, the building of which is to be undertaken by the railway companies in conjunction with the City. It was to be 10,280 feet long, average 15 feet above high tide, be 100 feet wide, have 4 railway tracks, a driveway, and sidewalks, and will cost \$1,400,000. The County was to pay one quarter, the electric railways between Houston and Galveston the same, and the steam roads one half.

CAVALRY. See MILITARY PROGRESS.

CAYENNE. See FRENCH GUIANA.

CAYMAN ISLANDS. British islands in the West Indies, administratively attached to Jamaica (q. v.). Area, 225 square miles; population (1906), 6,000. Cocoanuts, turtle-shell, and cattle are exported. The administration is by a Commissioner.

CEMENT. The United States Geological Survey at the close of 1908 estimated the production of Portland cement in the United States for the year as somewhat less than forty million barrels. This compares as follows with the output of recent years:

1905	35,246,812 Barrels.
1906	46,463,424 "
1907	48,785,390 "
1908 (estimated) ..	40,000,000 "

The falling off from the 1907 output was heavy, and was particularly notable because it was the first decrease shown in any year by the American cement industry since its inception. The decrease was not uniformly distributed throughout the country, for New York, Pennsylvania, and New Jersey showed the greatest losses, while in some portions of the West and the Middle West the decrease was relatively slight. The total maximum capacity of existing plants at the end of the year was about 60,000,000 barrels.

During the year several small companies went into the hands of receivers and the financial stress also led to a change of control in a group of plants operating chiefly in the Pacific States. A fortunate effect of the depression was that it put a stop, temporarily, to the flotation of fraudulent or doubtful cement securities; though with improvement in general business conditions it was thought likely that promotion schemes would again be taken up on an even larger scale than before the depression. Despite the business depression, or perhaps partly because of it, there were a number of important technical and industrial developments in the cement industry during 1908, and others were pending at the end of the year.

CENSUS. See UNITED STATES.

CENTRAL AMERICA. The establishment of a Central American Court of Justice was a most important achievement of the Washington Peace Convention, which sat from Nov. 14 to Dec. 18, 1907. On May 26, 1908, the court was opened at Cartago, Costa Rica, in the presence of representatives from all the Central American republics, as well as the United States and Mexico. The day was celebrated as a national holiday throughout Central America. The United States Commissioner, Mr. William I. Buchanan, announced the gift of \$100,000 from Andrew Carnegie for the building of the temple as a seat for the court. An important case was brought before the court in July by Honduras and Nicaragua against Salvador and Guatemala. President Davila of Honduras presented a charge that the revolt of July, 1908 (see HONDURAS), was organized and supported in the neighboring republics of Guatemala and Salvador. At the same time President Zelaya of Nicaragua made similar charges. The latter's claims were dismissed as lacking foundation. The Honduran claims were examined at length and they were decided adversely in December. This was taken as a sign of the effective manner in which the court served the purpose for which it was designed. The differences here adjusted peacefully were of the class that formerly had often led to hostilities.

See COSTA RICA; GUATEMALA; HONDURAS; NICARAGUA; SALVADOR; and INTERNATIONAL BUREAU OF AMERICAN REPUBLICS.

CEYLON. An island of the Indian Ocean, situated southeast of the Indian Peninsula, a British crown colony. Area, 25,332 square miles. Population (1901), 3,565,954; estimated at the end of 1906, 3,984,985. The Maldiv Islands, a dependency of Ceylon, have an area of 115 square miles and a population of 30,000. The population of the principal cities in 1901 was: Colombo, the capital, 158,228; Galle, 37,316; Jaffna, 33,879; Kandy, 26,519.

PRODUCTION. About one-fourth of the island is under cultivation. The area planted in rice in 1907 was 688,824 acres; other grains, 110,598; tea, 438,243; coffee, 2,433; cocoanuts, 993,831; rubber, 115,676; cinchona, 1,229; cinnamon, etc., 44,380; cacao, 37,050; tobacco, 16,235. About 385,000 acres of the total area under tea is in plantations, the remainder being in small gardens owned by natives. About 1,200 Europeans are employed as managers and assistants on the large tea estates and factories. The plantation labor is performed by about 400,000 Tamil coolies and women imported from the Malabar coast, India. Their daily wage varies between 8 1-3 and 11 2-3 cents, besides housing and rice furnished at cost. The natives prefer working their buffalo teams for hire or on their own rice fields to plantation labor, but several thousand of them are employed in transporting tea to the railways and supplies to the estates. The recent extension of rubber plantations in the Federated Malay States, in the Straits Settlements, and in Ceylon itself, has so increased the demand for Tamil labor that Ceylon tea planters have found the supply inadequate, and a government commission was appointed for the purpose of devising, if possible, a labor system satisfactory to both planters and coolies. By the middle of 1908 the commission had not yet made its report. The exports of tea in 1907 amounted to 179,844,827 pounds (a gain of 9,316,336 pounds over 1906), valued at \$24,-

878,535. The average price per pound was 1.78 cents over that prevailing in 1906. The value of the tea export was 58.7 per cent. of the total exports in 1907. The distribution of the tea export of 1907 was as follows: Great Britain, 111,485,802 pounds; Australasia, 23,789,666; Russia, 19,670,490; China (for blending), 7,699,129; Canada, 6,161,602; United States, 5,528,297; Germany, 578,881; France, 461,845.

The fall in the price of tea and the rise in the price of rubber have greatly stimulated the cultivation of the latter. In 1904 there were 25,000 acres under rubber trees, with 600 acres in bearing; in 1905, 40,000 and 1,000 acres respectively; in 1906, 100,000 and 2000; in 1907, 150,000 and 2,500; while for 1908 the estimate for planting was 10,000 acres, and 120 acres were expected to begin to bear. The figures are only approximate, as for many estates tea and cacao are interplanted with rubber. The recorded exports of Ceylon rubber are: 1904, 35 tons; 1905, 75 tons; 1906, 150 tons; 1907, 397 tons; 1908 (Jan. 1—May 11), 113 tons. The capital invested in rubber planting is roughly estimated at \$9,000,000. The labor force is estimated at 250 Europeans and between 75,000 and 100,000 Tamil coolies. The recent rise in the price of camphor has resulted in the establishment of a new industry. The camphor tree thrives in the mountainous parts of the islands at an elevation of from 2500 to 8000 feet. It was estimated that the planting of between 15,000 and 20,000 acres in Ceylon would yield 8,000,000 pounds, or about the entire present demand of the world-market for camphor. The rapid growth of the twigs and the cheapness of land and labor are the factors depended upon by planters to give Ceylon an advantage over other camphor-producing countries. In 1906 the camphor acreage was increased from 142 to 1,106, and it was expected to increase still further in 1908. The export of camphor in 1907 was 562 pounds. The export of other products in 1907 was as follows: Cinnamon, 5,777,962 pounds; cardamon, 765,470 pounds; desiccated cocoanuts, 22,359,138 pounds; cotton, 317,563 pounds; cacao, 88,180 cwts.; coffee, 1,843 cwts.; coir, rope, etc., 296,338 cwts.; ebony, 1,154 cwts.; poonac, 208,957 cwts.; cinnamon oil, 97,229 ounces; citronella oil, 1,230,159 pounds; cocoanut oil, 460,683 cwts. In 1906 the live stock consisted of 3,743 horses, 1,542,909 horned cattle, 95,389 sheep, 177,425 goats, and 99,495 pigs. There is a government dairy and model farm, and efforts are made to improve the native breeds of cattle, sheep, and pigs by crossing with imported animals. In 1906 there were 951 plumbago or graphite mines. The export of plumbago began to fall off in the second half of 1907, the total shipments for the year amounting to 650,116 cwts., valued at \$2,968,863—a falling off of 51,729 cwts. from 1906. There were in 1908 no great stocks above ground, and prices remained steady, but most of the mine owners suspended production. Of the 1907 exports of plumbago the United States took 290,417 cwts.; Great Britain, 169,857; Germany, 100,012; Belgium 75,825 cwts. In 1906 there were 7,226 gem quarries. The pearl-fisheries are a government monopoly, leased to a company for 20 years from Jan. 1, 1906, at an annual rent of 310,000 rupees. The yield of the pearl-fisheries in 1907 was valued at \$343,248, against \$445,581 in 1906, which was the best year on record. The manufacture of

salt, another government monopoly, yielded a revenue of Rs. 1,737,871 in 1907.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1907 were valued at Rs. 129,316,757 and Rs. 129,570,001 respectively, against Rs. 123,502,921 and Rs. 112,516,914 in 1906 (1 rupee=32.44 cents). The principal imports in 1907 were, in rupees: Coal and coke, 10,549,944; cotton manufactures, 8,460,032; rice, mainly from British India, 40,984,967; sugar, 3,135,623; manures, 3,689,274; coin and bullion, 9,254,823. The principal exports in 1907 were, in rupees: Areca nuts, 2,415,047; cinnamon, 3,045,708; cacao, 5,232,193; cocoanuts, 904,536; desiccated cocoanuts, 4,471,427; coffee, 203,941; coir, 2,537,163; copra, 5,322,464; citronella oil, 1,386,078; cocoanut oil, 11,830,324; plumbago, 8,906,589; tea, 74,635,605; unmanufactured tobacco, 928,824; coin and bullion, 201,750. The trade with the principal countries of origin and destination in 1907 was as follows, in rupees:

From and to	Imports.	Exports.
Great Britain	Rs. 32,720,989	Rs. 65,932,672
British India	69,018,578	7,099,982
Canada	5,842	2,608,267
Other British Colonies	12,928,178	12,741,485
France	757,612	733,098
Germany	2,921,136	8,202,674
United States	1,002,406	11,814,331

The length of railway in 1906 was 562 miles; of telegraph lines, 1,652 miles. The marine on Jan. 1, 1907, consisted of 8 steamers, of 982 tons, and 143 sailing vessels, of 10,972 tons.

GOVERNMENT AND FINANCE. The colony is administered by a Governor—in 1908, Colonel Sir Henry E. McCallum—assisted by an Executive Council of five officials and a Legislative Council of nine officials and nine unofficial members. The British troops in 1908-9 numbered 1,166. There is a volunteer force of about 2,500. The cost of the garrison is borne by the colony. The revenue and expenditure in 1907 were Rs. 36,573,844 (Rs. 9,677,880 from customs) and Rs. 35,291,521 respectively. The public debt, incurred entirely for railways and public works, stood in 1907 at £4,602,570 and Rs. 3,125,562.

The chief measures before the Legislative Council during its session (Aug. 20 to Nov. 20, 1908) concerned the public works, including the Mannaar railway, drainage, and the commercialization of Colombo lake; also a project for the closing of all licensed opium dens and for placing the regulation and distribution of the drug under the control of the medical department. Action on it was deferred till February, 1909. Opium-users were estimated at 10 per cent. of the population.

CHADWICK, HENRY. An American newspaper writer and editor, popularly called the "Father of Baseball," died on April 20, 1908. He was born at Exeter, England, in 1824 and came to the United States when but thirteen years old. He early became prominent as a writer on sporting topics, especially cricket and baseball, serving first in the capacity of reporter and later in his career in that of editor. He edited *Spalding's Baseball Guide* for several years.

CHAFIN, EUGENE WILDER. Presidential candidate of the Prohibition party in 1908, born at East Troy, Wis., on Nov. 1, 1852. He was educated at the University of Wisconsin, receiv-

ing the degree of LL.B., and for twenty years practised law at Waukesha, Wis. In 1901 he moved to Chicago, expecting to continue his law practice, but became interested in platform speaking and campaign work. In July, 1908, he was nominated for President by the National Prohibition Convention, held at Columbus, Ohio, and in the election received a popular vote of 248,881. Mr. Chafin has devoted considerable time to the study of American history and is the author of *Lincoln: The Man of Sorrows*. See **PRESIDENTIAL CAMPAIGN**.

CHAMBERLAIN, GEORGE EARLE. An American political leader, Governor of Oregon (Democrat) from 1902 to 1909; born near Nathez, Miss., on Jan. 1, 1854. He graduated at Washington and Lee University in 1876, receiving degrees both from the classical and the law departments. After graduation he moved to Oregon, where he began his law practice and entered politics. In 1880 he was elected a member of the State Legislature, and in 1884 was chosen district attorney for the third judicial district. He became attorney-general by appointment in May, 1891, and the following year was elected to that office, which he held until 1895. In 1900 he was elected district attorney for the fourth judicial district, but resigned the position upon his election to the governorship in 1902. In 1906 he was reelected Governor, and in June, 1908, by direct primary was endorsed for United States Senator. This endorsement, however, must be ratified by the legislature, which convenes in Jan., 1909. But, inasmuch as a majority of the legislators pledged themselves to carry out the wishes of the people as expressed in the direct primary, the election of Mr. Chamberlain to the Senate was practically assured. See **OREGON**.

CHAMBERLAIN, JACOB. An American missionary of the Reformed Dutch Church, died on Mar. 2, 1908, at Mandanapalle, India. He was born on April 13, 1835, at Sharon, Conn., graduated at the Western Reserve College in 1856, at the Reformed Theological Seminary, in New Brunswick, N. J., in 1859, and in medicine at the College of Physicians and Surgeons, New York, and the Western Reserve Medical College. In 1859 he went to the Arcot mission, in Southern India, as a medical and evangelistic missionary. He established the mission and hospitals at Mandanapalle, and also the hospital at Palamanir, and was engaged in mission work at Mandanapalle until 1901, after which he devoted himself to the study of the Telugu and Tamil languages. He was chairman of the committee which produced a new version of the Bible in Telugu (1873-94), and he translated the liturgy of the Reformed Church into that language, and also prepared a Telugu hymn book, and an Oriental Bible Dictionary.

CHARITY ORGANIZATION. Recent years have witnessed in the United States a decided tendency toward a more perfect organization of charitable efforts. This has resulted not only in the unification of the charitable work of religious denominations but also in the centralized organization of non-denominational activities. Moreover through the National Conference of Charities and Corrections, both denominational and non-denominational charitable activities have been more or less unified and animated by a more intelligent spirit. The recognition that an exact knowledge of conditions and a more intimate acquaintance with causes are fundamental both

to an intelligent treatment of the results of poverty and a scientific prevention of its causes has been the keynote of many recent efforts and particularly of those of the Russell Sage Foundation. The year 1908 saw the organization of new societies for the centralization of charitable efforts in many American cities. Everywhere there was shown a tendency to secure trained officials for such work. As a means of training workers and spreading a knowledge of the principles of relief, schools of philanthropy have been called into existence in New York, Boston, Chicago and St. Louis. The scope of present day activities is very broad, including not only the relief of the poverty stricken and the finding of employment for those out of work, but also the betterment of housing and working conditions; the care of children in the home, the school and the factory; the safeguarding of female workers; the improvement in the conditions and care of all those unfortunates housed in public institutions; the better education and training of prisoners, their more humane treatment and the betterment of their opportunities after release.

Recently established benefactions, including the General Education Board, the Carnegie Institution, the Carnegie Fund for the pensioning of teachers, the Rockefeller Institute, the Russell Sage Foundation and the Jeanes Fund for the Primary Education of Negroes, now amount to almost \$100,000,000.

The thirty-fifth National Conference of Charities and Corrections was held at Richmond, Virginia, in November. President Murley will be succeeded next year by Ernest P. Bicknell. The next Conference will be held at Buffalo. Since the Conference has outgrown its original purposes, a committee was appointed to consider the advisability of forming a federation of the philanthropic societies of the country with provision for sectional meetings of those having kindred interests. Among the topics discussed either by the Conference as a whole or by sectional meetings were, the advancement of social work among the isolated mountain folk of the South; the influence of environmental conditions on children in cities of various sizes and characters: the care of juvenile delinquent (q. v.) unemployment (q. v.); the use of the wood-yard as a test of good faith; labor colonies; prison reform, with emphasis on various judicial reforms for both juvenile and adult cases, on reclaiming the delinquent, and on the extension of the indeterminate sentence, parole and probation systems (See **PENLOGY**); the defective classes, their intelligent classification as a means of better care and training for each type, the permanent custodial care for serious cases and a scientific investigation to determine causes and means of prevention. In the section devoted to the insane and epileptic, New York's care of its dependents was described. Dr. Ferris of the State Lunacy Commission cited cases of recovery after ten years and stated his belief that many so-called chronic cases were merely protracted cases capable of recovery. Greater publicity for the various philanthropic activities now being supported was advocated and approved. In the denominational sections the reports showed that the year had been one of unusual activity and difficulties, but nevertheless one of commendable success.

State conferences of a similar sort were held during the year in Indiana, Illinois, Kansas, Maine, Massachusetts, Minnesota, Missouri, New

Hampshire, New York, Ohio and some other States. The reports showed a tendency to specialize on subjects of especial local interest. In Indiana marked attention was given to the housing problem and the introduction of more sanitary conditions into the crowded cities. (See POPULATION, CONGESTION OF.) In Illinois the administration of almshouses and similar institutions and the conditions of health in jails and penitentiaries caused wide-spread discussion. Cook County in that State erected a new \$2,000,000 infirmary. In Kansas subjects discussed included meagreness of funds, political meddling and a comparison of the plan of caring for children in public institutions and the plan of placing them out in private families. In New York and Massachusetts, tuberculosis (q. v.) and congestion of population (q. v.) were the principal topics of discussion. Charity organization in both of these States, and especially in New York City and Boston, have shown great favor for public exhibits, which set forth in a realistic manner conditions of life and labor among the poorer classes. In 1908 tuberculosis and congestion exhibits of far-reaching influence were held in New York. In both New York and Ohio the subject of blindness was considered. Dr. F. Paul Lewis of the Batavia State School for the Blind in New York declared that as many as 60,000 cases of blindness in the United States were preventable, the majority of them being due to syphilis. In the Ohio conference it was declared that 58 per cent. of the cases of blindness in that State were preventable. In Massachusetts was held an exhibit showing the work done by the blind in the schools of the State.

At the fall opening of the New York School of Philanthropy almost 100 students were enrolled, representing 15 States, the District of Columbia, Italy, Canada and Cuba. The Chicago School of Civics and Philanthropy registered 60 students at its opening. The research department of the School will study the housing problem in Chicago. The Boston School of Social Workers opened with a class of 52, part of whom were State and municipal officials. The St. Louis School of Philanthropy started with a class of 22. Among the objects to be investigated are the milk supply and medical care of school children. This school is directly a result of the Russell Sage Foundation, which contributes also to the eight fellowships of its research department. Among special activities of the year may be mentioned the agitation by the National Consumers' League to induce the American people to do their Christmas shopping as early as possible. This was designed as a measure of protection for the thousands of women and children who work long hours in retail and department stores during the holiday season. This same organization took measures to protect children from cheap and injurious Christmas candies. Probably the most important investigation of the year was that of housing and labor conditions at Pittsburg and vicinity by representatives from the Charity Organization Society of New York. (See VAGRANCY and PENOLOGY.)

CANADA. The Ninth Canadian Conference of Charities and Corrections was held in Toronto, Nov. 25-26. The Province of Ontario was alone well represented. The Superintendent of the Ohio State Reformatory at Mansfield, Mr. J. A. Leonard, presented the plans of that reforma-

tory. His visit was of especial moment since the Province contemplates the construction of a reformatory on some such plan. The discussion included the subjects of county poor-houses, care of the feeble-minded, and the indeterminate sentence. The discussion brought out the statement that 50 per cent. of the insane population of the Dominion have come in recent years from Great Britain.

SWEDEN. The Commission appointed in 1905 for the study of social conditions by the Central Association of Social Workers reported in April. They recommended a revision of the Law of 1870 giving the care of the poor to the parish so that individuals needing aid may obtain it; the raising of the minority age from 15 years to 18 years in order to give poor guardians more authority; the prohibition of outdoor relief to drunkards and chronic idlers; work-houses for able-bodied paupers; separate wards for children; and the care of nursing mothers in separate wards. A committee of voluntary workers under state supervision was advised to oversee and control public and private charities. It was recommended that temporary relief should be given with the understanding that the recipient should pay it back in small instalments according to his circumstances. The Commission declared that non-supporters and deserters should be forbidden to migrate, and in cases of refractoriness, imprisonment or detention was recommended.

CHARTERIS, ARCHIBALD HAMILTON. A Scotch clergyman, emeritus professor of Biblical criticism in the Edinburgh University, died on Apr. 24, 1908. He was born in Wamphray, Dumfriesshire, on Dec. 13, 1835; graduated at Edinburgh University in 1852, and in 1858 was licensed a minister of the Church of Scotland. In 1862 he succeeded Dr. Caird, as pastor of Park Church, Edinburgh, and in 1868-96 he had the chair of Biblical criticism in Edinburgh. Dr. Charteris was one of the most active supporters of the Scotch Church Patronage Bill of 1874, which provided for the "abolition of all church patronage from the Crown downwards, and the creation of a constituency by whom the minister of a congregation might be selected." His most important literary achievement is his *Life of Professor James Robertson* (1863; 2d. ed., 1897); and he also published: *Canoncity, or Early Testimonies to the Books of the New Testament* (1881); *The Christian Scripture* (1888); and *The Church of Christ* (1905).

CHAUTAUQUA INSTITUTION. A system of popular education, founded at Chautauqua, New York, in 1874 by Lewis Miller and John H. Vincent. The local work of the Institution is done in connection with a summer Assembly and a series of Summer Schools. The Assembly of 1908 covered a period from July 2 to Aug. 30, during which sixty days an open programme of concerts, entertainments, readings, lectures, and addresses, numbering 1000 events or more, was conducted for the benefit of slightly over 50,000 visitors. The Summer School lasted from July 4 to Aug. 14, approximately 200 courses being offered by 90 instructors to a total registration of 3263, or 2716 without duplicates. Boys' and Girls' clubs with respectively 300 and 350 members, a Kindergarten with 50 members, furnish systematic recreation and instruction for the young residents. Courses for adults regularly taken in English, psychology and pedagogy,

music, arts and crafts, expression and physical education, are most largely attended. In 1909 the Arts and Crafts department goes into new and complete quarters on College Hill. The fire of Oct. 19, 1908 which practically destroyed the business block has resulted in the rebuilding of this commercial centre and in the supplementary erection of a Post Office and Print Shop. The total cost of the two buildings approximates \$75,000. One of the most important departments of the Institution is the Chautauqua Literary and Scientific Circle, which maintains home reading courses throughout the year. The subjects treated in these courses are American, English, Modern European and Classical, and they constitute a four years' course in history, literature, biography, travel, art, national institutions and life. Certificates, diplomas and seals are given for prescribed reading and answering review questions. Some seventy additional special courses of reading are outlined and recommended. The number of persons taking these courses in 1908 were 25,000, of whom 17,750 were women, and 7250 men. Since the organization of the Circle over 300,000 readers have been enrolled, and nearly three times that number have read parts of the home study courses. Circles are maintained in every State and Territory of the Union, in Canada, India, Mexico, South America, Hawaiian Islands, West Indies, Japan, and countries of Europe, Asia and Africa.

CHEESE. See DAIRYING.

CHEMICAL SOCIETY, AMERICAN. A learned society, founded in 1876. Two meetings were held during the year, one in New Haven in June, and one in Baltimore from Dec. 29 to Jan. 1, 1909. The latter meeting was in affiliation with the American Association for the Advancement of Science and the Biological Section of the society held a joint session with the Society of Biological Chemists. The sections represented and their respective chairmen were as follows: Agriculture and Food Chemistry, H. J. Wheeler; Biological Chemistry, J. J. Abel; Inorganic Chemistry, C. H. Herty; Organic Chemistry, S. F. Acree; Pharmaceutical Chemistry, Edward Kremers; Chemical Education, H. P. Talbot; Fertilizer Chemistry, F. B. Carpenter; Physical Chemistry, G. M. Lewis. The Division of Industrial Chemistry and Chemical Engineers also held a meeting. The year 1908 was one of the most successful in the history of the society, and its membership was largely increased. It now approximates 4,000. The Society publishes three journals, the *Journal of the American Chemical Society* in its 30th volume; *Chemical Abstracts*, now in its third volume, and the *Journal of Industrial Chemistry and Chemical Engineering*, which was to begin Jan. 1, 1909. *Chemical Abstracts* supplies the place to the English speaking world that *Chemisches Zentralblatt* occupies with German chemists. It abstracts over 400 periodicals annually and has met with immediate recognition and success. The President of the Society is Marston T. Bogert and the Secretary, Charles L. Parsons, Durham, N. H.

CHEMISTRY. GENERAL PROGRESS. The year 1908 was marked by no single discovery or investigation of epoch making character within the field of pure or applied chemistry. At the same time, a large amount of very import-

ant work was published as the result of the labors of an army of investigators that is growing at a rapidly increasing rate. The most striking feature of this mass of new material was found in the well-nigh universal application of the so-called physico-chemical methods to all branches of chemical investigation. The devotees of the various branches of chemistry were never more highly specialized, and yet these different groups were being brought more closely together than ever before by the prevailing and constantly increasing use of the methods of physical chemistry. Indeed, the term "physical chemistry" is almost a misnomer, for it is becoming increasingly difficult to define its limits. It is this fact that leads many to prefer the term "general chemistry."

Within the field of pure chemistry, the subject of radio-chemistry continues to attract much attention, and the application of more exact methods of quantitative measurements has brought about a revision of some of the views formerly held.

The application of chemistry to the arts and to the various manufacturing industries continued to increase at a rate that promised well for the future. The rank of a nation in the race for industrial supremacy is certain to be determined in no small measure by the degree to which it takes practical advantage of the increase in scientific knowledge. American manufacturers were beginning to realize the importance of this aid and were making constantly increasing demands for well trained chemists. By 1908 several large manufacturers had established research laboratories under the direction of able men who had been thoroughly trained in the methods of chemical research. So great was the demand for competent chemists for this work, and so large were the financial inducements offered, that it was becoming increasingly difficult for educational institutions to secure chemists of first class ability for teaching positions.

The NOBEL PRIZE awards for 1908 (see NOBEL PRIZE) showed the somewhat remarkable case of the chemistry prize given to a physicist. The award called attention to some of the difficulties that seemed likely to arise not infrequently in the future. The original conditions of the award stated that the prize shall be given annually to the investigators who shall be considered to have made the most notable contributions in the several branches during the past year. Heretofore the chemistry prizes certainly had not always been given in strict accordance with this provision, but had been given, regardless of recent work, to men who long before had achieved distinction. Professor Ernest Rutherford to whom the chemistry prize was given in 1908 was a physicist and the work in which he has achieved distinction is rather more physical than chemical. Rutherford was one of the ablest authorities upon the subject of radio-activity, and his work had contributed probably more than that of any other single individual to the general knowledge of this subject. His work dealt more, however, with the physical than with the purely chemical aspects of the subject. It was another striking example of the rôle that the so-called physical chemistry was playing in abolishing the boundary between physics and chemistry.

NEW ELEMENTS AND ATOMIC WEIGHTS. The only new elements given official recognition

by the International Atomic Weights Committee in 1908 were Neoytterbium and Lutecium. In 1907 Urbain announced the existence of these elements as constituents of Ytterbium. Further work confirmed the fact that the so-called element Ytterbium was not really an element, but a mixture of these two substances. Their elementary nature was proved also independently by A. von Welsbach, who proposed the names Aldebaranium and Cassiopeium. Urbain seems to have the best claim to priority of announcement, and his nomenclature will undoubtedly be adopted. The International Committee on Atomic Weights announced a revision of the authorized atomic weight values in accordance with the most recent work upon some of the fundamental values, especially those of silver, chlorine, bromine and nitrogen. There seemed to be no question that the old value of Stas for silver was too high, and that the true value was not much above 107.88. This number was adopted in the revision. The value to be assigned to nitrogen was also the subject of much interest during the past. The work of Richards published in 1907 was supplemented by further work on the analysis of ammonium chloride. From this work Richards obtained the value of 14.008 for nitrogen, 107.881 for silver, and 35.457 for chlorine. These values, rounded off to two decimals, are identical with those adopted by the International Committee. The use of these values, with 79.916 for bromine, introduced many slight changes in the previously accepted values, especially among the more accurately determined elements. These changes are mostly slight, such as 137.37 instead of the old 137.44 for barium, and 63.57 in place of 63.60 for copper. The work of Baxter and Wilson upon the analysis of lead chloride has resulted in the value of 207.10 for lead, considerably higher than the old figure. Mme. Curie's latest value for radium, 226.4, is considered to be the best so far obtained, and is introduced in place of the old 225.

During the year 1908 the question of the exact application of the law of the conservation of weight to chemical reactions was considerably discussed. It was suggested that sufficiently exact work would show slight changes of weight involved in chemical reactions, the gain or loss of weight possibly corresponding to loss or gain of energy by the reacting substances. Landolt showed very conclusively that this is not the case, but that the law holds strictly true in so far as it applies to chemical reactions.

HELIUM. Professor Onnes of Leiden announced that he had succeeded in liquefying helium. All previous attempts by Dewar, Olsceviski, and others had failed with this gas, chiefly on account of an inadequate supply of helium. Onnes announced that at a temperature of 4.5° absolute he had obtained condensation.

RADIO-CHEMISTRY. While most of the work upon radio-activity had been of a purely physical nature, the purely chemical effects received considerable attention. In 1907 Professor Ramsay made the startling announcement that by the action of radium on copper sulphate solution he had succeeded in transforming copper into lithium and sodium. Other investigators at once attempted to confirm this statement, thus far unsuccessfully. Ramsay himself, using greater precautions, was unable to repeat his original work. Mme. Curie likewise obtained negative results but stated that "it is impos-

sible to affirm that no trace of sodium or lithium was formed in the experiment. We believe, however, that formation of these elements cannot be considered as established fact." Rutherford found no trace of lithium on repeating Ramsay's experiment. Ramsay in his earlier work also claimed that neon is produced by the action of radium emanation on water. Rutherford was unable to find a trace of neon. It seemed fairly well established, therefore, that the much heralded transformation of elements does not occur in this instance at least.

The existence of the element ionium as a fugitive intermediary body between uranium and radium as discovered by Boltwood in 1907, was confirmed independently by Marckwald and by Hahn. The probable existence of such a substance had been predicted for several years from the consideration of the relative rates of decay of radium and of uranium. It was evident that radium must be continually produced from uranium. Otherwise all existing radium must have disappeared long ago, since it requires at the highest estimate only 3,000 years for a given quantity to be reduced to one-half its original amount, and would practically disappear in about 100,000 years. Actually Boltwood found that there was a constant ratio between the amounts of radium and uranium in uranium ores. The known rate of decay of uranium was too great to account for the existing proportion of radium. Hence the probability of an intermediary substance. Ionium, which resembles thorium closely in its chemical reaction, doubles its radium content in less than six months, a rate of growth sufficient to account for the existing proportion of radium in uranium ores. From a more extended study of the rate of radium growth from ionium Boltwood determined the half value period of radium decay as about 2000 years. The same investigator considered that ionium was undoubtedly the direct parent of radium but it was possible that the so-called Uranium X was intermediary between uranium and ionium. It was assumed from its close relationship to thorium that the atomic weight of ionium was probably not far from 230. No method of separating ionium from thorium was devised.

Attempts to show that the activity of thorium may be due to other substances and not to pure thorium, by Hahn and McCoy independently, showed that thorium itself possessed activity, even when free from radiothorium, or mesothorium.

Dewar determined by direct measurement the rate of production of helium from radium, and obtained an increment of approximately 0.37 cubic millimeter of helium per gram of radium per day. This was only about one-eighth the value derived from Ramsay's work, but agreed remarkably well with Rutherford's calculation of 0.4 cu. mm. per day based upon purely theoretical assumptions two years ago.

The amount of helium present in the minerals of the earth's crust was determined by Strutt. He found that the amount depended upon the quantity of radio-active elements present, and was present in deposits of all geological ages, although it was not so plentiful in the younger deposits. In examining some of the Stassfurth salt deposits, he found that some of them, notably the potassium minerals sylvine and carnalite, contained remarkably large quantities, greater than can be accounted for by the small

quantities of uranium and radium present. He considered that potassium may possibly be the source of the helium in these minerals. See PHYSICS, section on *Radio-activity*.

ORGANIC CHEMISTRY. Fischer, Abderhalden, and their colleagues have made good progress during the year in their studies upon the synthesis of the polypeptides. These investigators are rapidly accumulating a large mass of data which seems likely before long to lead to a considerable advance toward the attainment of protein synthesis.

The chemical composition of chlorophyl, and the chemistry of plant physiology in general is a subject that has been long a favorite subject for speculation and research by organic chemists. An important contribution to this subject was made by Willstätter and Benz who have succeeded in isolating and analyzing crystals of chlorophyl. These were thought to be pure chlorophyl, now obtained for the first time, all products hitherto obtained being decomposition products. The crystals obtained were bluish green in color, have strong metallic lustre, and show brilliant reflections in sunlight. The most interesting and surprising feature was the fact that chlorophyl is a magnesium compound, containing 3.4% of magnesium. The molecule is very complex, the analysis agreeing closely with the composition $C_{55}H_{82}O_7N_4Mg$.

Esterification is a subject that received much attention. Among the many papers dealing with the subject that have appeared during the year 1908, may be mentioned those by Phelps and his colleagues, who studied quantitatively the preparation and purification of esters, and especially the influence of catalytic agents in ester formation. They found zinc chloride and hydrochloric acid to be a particularly efficient catalyst in forming esters of benzoic, succinic, malonic, and cyanacetic acids. In this connection these authors recommended the use of malonic and succinic acids and their anhydrides as easily prepared direct standards for alkalimetry and acidimetry.

The papers of Rosanoff and Prager were among the most important contributions to the subject of esterification. They took up the so-called esterification law of Victor Meyer, and their work so far seemed to show that this so-called law was really not such, but that "aromatic acids with one or both positions next to the carboxyl occupied by substituting groups, combine with alcohols more slowly, though to no less extent, than acids otherwise constituted." If this conclusion should be borne out by further work, the steric hindrance hypothesis will obviously have no basis for existence.

The reason for the color changes of indicators is still undecided. The dissociation hypothesis proved inadequate and was replaced by the quinoid rearrangement theory of Stieglitz. Acree, and also Stieglitz, considered that this theory was insufficient without amplification. They concluded that the color was not due primarily to the presence of a quinone group, but rather to intramolecular union of such a group with a salt of phenol, or with an aniline-like group. The red color of salts of phenolphthalein is thus due to the presence of salts of a dibasic acid containing such groups. This view of the constitution of phenolphthalein was corroborated by determination of the dissociation constant by Wegscheider.

A suggestive discussion of the probable nature of chemical affinity was published early in 1908 by Wilder D. Bancroft. While the nature of affinity will doubtless long remain a puzzle in science, the discoveries of recent years seem to indicate more and more clearly the electrical character of chemical forces.

Blackman invented a simple and apparently excellent method for determining the vapor densities of substances. A minute manometer made of capillary glass tubing and closed with a drop of mercury is introduced into an ordinary Carius tube of glass, and the temperature and position of the mercury in the capillary noted. The substance whose vapor density is to be determined is then introduced into the wide tube, the latter is sealed off and placed in a bath whose temperature is considerably higher than the boiling point of the substance to be examined. The new position of the mercury in the capillary reveals the pressure within the apparatus. Next the tube is cooled, opened, and filled with water, for the purpose of determining its volume. From the data thus obtained the vapor density of the given substance becomes known with a high degree of accuracy. A determination takes about three-quarters of an hour, and the method promised to be a real improvement on those generally used hitherto.

An interesting theoretical study of the laws of osmotic pressure was published by Lewis. The direct measurements of osmotic pressure carried out by Morse and Frazer showed that the simple laws deduced by van't Hoff require modification when applied to solutions of definite concentration. Lewis showed that by assuming that Raoult's law applies to solutions of all concentration, it was easy to calculate values for the osmotic pressure, which are in excellent agreement with the direct determinations of Morse and Frazer. Lewis further endeavored to explain the astonishing observation made by these experimenters, that the osmotic pressure of sugar solutions is the same at $0^\circ C.$ as at 25° . Meanwhile Prof. Morse and his collaborators carefully were refining and extending their direct measurements, and their painstaking efforts were resulting in a contribution of the highest value to physico-chemical science.

The principle of Soret, in accordance to which if one part of a given solution is heated and another part cooled, the substance dissolved will accumulate in the colder part until finally the concentrations have become inversely proportional to the absolute temperatures,—this principle was subjected to new experimental investigation by Oscar Scarpa at Naples. Contrary to Soret's own results, and to later experiments by Arrhenius, Scarpa found the mathematical theory of the phenomenon very closely borne out by facts when these are properly interpreted. It was doubtful, however, whether even these latest results may be considered as furnishing a final solution of the important problem of the Soret principle.

During the year Washburn succeeded in demonstrating experimentally, by highly precise measurements of the so-called "transfer numbers," the correctness of Jones's theory, according to which salts, or rather their electrically charged parts or "ions" in aqueous solution are chemically combined to a greater or less extent with the solvent. The theory in question must not be confused with the hydrate theory advanced a number of years ago by the late Prof.

Mendeléeff of St. Petersburg. Mendeléeff's theory had been repeatedly and severely criticised by the German School of Physical Chemistry and was generally taken to be false.

An important theoretical contribution was made by Stieglitz, of Chicago, who succeeded in showing that while Ostwald's dilution law, and even the empirical improvements on that law recommended by Rudolphi, van't Hoff, and Bancroft, fail to hold good for solutions of strong electrolytes, the principle of the constancy of the solubility-product holds with apparently perfect generality. The dilution law is important enough in its purely theoretical bearings. But it is the constancy of the solubility-product that forms the present theoretical basis of analytical chemistry, and therefore Stieglitz's contribution had very genuine practical value.

Morgan and Stevenson succeeded in highly improving the method of measuring the surface tension of liquids by the weight of falling drops, and showed how the molecular weights and critical temperatures of liquids can be determined with precision by this method. Their measurements constitute an experimental demonstration of the laws of Tate, viz., (1) that under given conditions, the weight of a drop is proportional to the surface tension of the liquid with respect to air saturated with its vapor; (2) that the weight of the falling drops of a liquid decreases with rising temperature. The most valuable part of Morgan and Stevenson's contribution lies in the high refinement of their experimental method.

Buttelli and Stefanini published a paper defending (against Sella) their view that two dilute solutions having the same vapor pressure, and therefore the same osmotic pressure, have the same surface tension. The subject is one of far reaching theoretical possibilities, and the principle just stated may also result in a new practical method for determining the molecular weights of substances in solution.

Wilhelm Engler succeeded in showing that, contrary to the widely accepted view, the changes going on in radio-active substances were more rapid at higher than at lower temperatures. Working in sealed vacuum tubes made of fused quartz and maintaining by electric means a temperature of about 1300°C., he found that radium produces its "emanation" and, in turn, the emanation decomposes much more rapidly than at ordinary temperatures. When the temperature was lowered, the original rate of change was re-established. Since radio-active changes are *par excellence* intra-atomic, Engler's interesting observation was direct proof, among other things, that a rise of temperature involved an increase of the kinetic energy, not only of the molecules, but also of the atoms of a substance.

The nature and properties of liquid crystals formed the subject of a considerable number of publications which appeared during 1908. Perhaps the most striking contribution was that made by Vorländer who succeeded in preparing crystalline liquids that were clear and absolutely transparent. These liquids were obtained by the condensation of anisaldehyde, ethoxy-benzaldehyde and phenyl-benzaldehyde, with alpha-constituted para-amino-cinnamic ethyl esters. The substances in question are viscous, but fail to show any turbidity even when examined with the ultra-microscope. When examined with convergent polarized light, a thin layer of one of these liq-

uids is found to behave like any double refracting crystal cut perpendicularly to its principal axis. In view of the fact that the existence of liquid crystals had long been doubted in many quarters owing to the peculiar appearance of those substances, closely resembling mechanical mixtures, or rather emulsions, Vorländer's find must be considered as an addition of great importance to our definite knowledge of one of the most curious phenomena in physical chemistry.

CHEMISTRY, INDUSTRIAL. A summary of the events of the year shows persistent effort in many directions towards improvement in details of processes, revealing a gratifying tendency to accord a greater recognition to the efforts of those chemists who have made industrial chemistry the vocation of their lives. This tendency readily explains the increase in the number of chemists in active practice as well as the increase in the literature of that science.

ORGANIZATIONS. In the United States the American Chemical Society (q. v.) continued its remarkable development under the presidency of Marston T. Bogert, and general meetings were held in New Haven, Conn., during June 30-July 2, and in Baltimore, Md., during Dec. 29, 1908.—Jan. 1, 1909. New sections of Eastern New York, with headquarters at Schenectady, and of Louisville, Ky., were established. Beginning with Jan., 1909, a monthly *Journal of Industrial and Engineering Chemistry* was to be distributed to its members. Its total membership in 1908 was about 4000. The Nichols medal was presented in 1908 to William H. Walker of the Massachusetts Institute of Technology for "conspicuous achievements in the field of industrial chemistry." The Society of Chemical Industry in Great Britain held its annual meeting at Newcastle in July and there chose Raphael Meldola for its president. This society issues a fortnightly journal. Its membership is about 5000 of which a third are residents of the United States. Its Perkin medal was presented in 1908 to J. B. F. Herreshoff of the General Chemical Company, New York.

METALS. The importance of calcium as a reducing agent, and hence its growing value in metallurgy led to a careful study of its properties which were described as follows: It is a silvery white metal that easily oxidizes in moist air; it is very light, with a specific gravity of 1.52, very malleable, and a good conductor of heat. It is as hard as aluminum; but at 400° C., it becomes as soft as lead. It is volatile and may be sublimed in a vacuum between 700° and 800°C.; at the latter temperature it melts. When alloyed with other metals its principal effects are to contribute hardness and so to produce crystallization, which naturally involves fragility. It hastens oxidation and disintegration under the influence of the air; increases decomposition of water, and aids the chemical activity. When used in refining metals, calcium acts in three ways: first, by reducing oxides and sulphides; second, by eliminating dissolved gases; and third, by forming compounds with certain impurities and thus rendering them less objectionable. In the case of copper in particular, the presence of calcium remedies the faults of the dry or sulphurous coppers and gives good castings.

A popular illustrated description of a recently installed plant at Nogent-sur-Marne in France for the manufacture of radium salts contained the following statements: The pitchblende resi-

dues obtained in the manufacture of uranium are first passed through crushers. The subsequent treatment is continued in wooden tanks and cast-iron tanks provided with stirring-devices. Each ton of residue will require five tons of chemicals and fifty tons of rinsing-water. The residues contain sulphates of practically all metals, and, as radium sulphate is the least soluble of all, this property is utilized to separate it from the remaining sulphates by washing it alternately with alkaline salts and water. As radium sulphate always remains at the bottom of the vessel, it is found there at the conclusion of the different operations (lasting about two and a half months), when one or two kilograms of impure radium bromide will be obtained from each ton of residue. The activity of this radium-holding salt hardly exceeds 50 to 60. Products of higher activity are obtained by submitting the mixture of salts to a series of successive crystallizations in pure water, and in water containing some hydrobromic acid. The difference of solubility of the bromide of radium and barium respectively is thus utilized, with a view of separating them from one another. After dissolving the various bromides, the solution is saturated at a boiling temperature, and beautiful crystals are obtained on cooling. These crystals possess an activity five times greater than the originally dissolved salts, and by repeating the operation, products of increasing activity are obtained. While the first fractional operations are still carried out on a commercial basis, the more minute operations required to treat the products of higher activity are necessarily performed in the laboratory by skilled chemists. At the end of this difficult treatment only one to two milligrams of bromide are found to remain from each ton of original residues, but this small amount shows an activity two million times higher than metallic uranium.

Announcement was made of the discovery of an alloy simulating the appearance of gold, and of unusual durability, which was described as consisting of 978 parts of copper, 2 parts of gold, and 20 parts of aluminum. The first step in its production is the melting of the copper and the gold in a crucible of fire-clay or other fire-proof materials. The mixture is kept in a molten condition about half an hour, after which 50 parts of borax are added as flux. The mass can then be poured out into bars. This alloy can be wrought into plate or wire, thus allowing of the manufacture of many varieties of jewelry and trinkets. It is said to be extremely ductile and malleable and when polished, very brilliant.

NITROGEN. Much interest continued to be manifested in the production of nitrogen. From a French source comes the following statement: The production of chemically pure nitrogen presents such difficulties that it has been considered practically impossible, at least on a commercial scale. Even using liquid air, the gas obtained is not perfectly pure. By lowering the temperature so far that the nitrogen of the air is not only liquefied, but solidified, it has now been found that it may be removed in a chemically pure state. By taking advantage of the fact that oxygen and nitrogen, the two principal constituents of air, liquefy at -182° and -195°C , these gases may be obtained in separate form and practically pure. Below -195° and at atmospheric pressure these two constituents form a transparent liquid slightly tinted with blue, the

color of liquid oxygen. As the temperature of this liquid rises, the nitrogen, which is the more volatile, vaporizes first, and when the temperature is intermediate between -195° and -182° , almost nothing is left but the liquid oxygen. The phenomenon is somewhat complex; the oxygen evaporates also, even below -182° , but less rapidly than the nitrogen. The combination of atmospheric nitrogen in the manufacture of artificial fertilizers had not been altogether successful up to the close of the year. The chief expense of the process was the cost of the power. Moreover, unless the oxides of nitrogen produced in the arc are immediately removed from it, they will be decomposed. In those processes which were promising the best results this effect was being overcome by drawing the treated air rapidly away from the arc. In the Birkeland and Eyde process, which seemed to be the only one of this class in operation, in addition to keeping the air flowing constantly through the furnace, an alternating-current arc was employed, which, by means of a magnetic field was blown rapidly across the stream of air, thus acting but a short time on any portion of it. The efficiency of this process was said to be higher than that of the other processes which have been tried, and the system was in operation in Norway, where cheap power is available.

Another process, which is conducted on a commercial scale in Italy, was also electrical, but the energy was used simply as a heating agent. The process depended on the reaction which takes place when calcium carbide was heated and brought into contact with nitrogen. One atom of carbon is given up, its place being taken by two atoms of nitrogen, resulting in the compound known as calcium cyanamide. A modified process credited to J. B. C. Kershaw was as follows: A further improvement would be a method that would lower the temperature at which the reaction takes place. It has been found that calcium chloride and calcium fluoride have this effect. They are unchanged by the reaction and remain in the product as adulterants, and this may be objectionable or not according to their properties. Nitrogen is used to fill thermometers, to inflate pneumatic tires, where it takes the place of ordinary air with advantage, and in the manufacture of nitrates and of calcium cyanamide, and apart from the uses of the laboratory, nearly pure nitrogen is good enough for these purposes. The French chemists Muntz and Lainé studied the possibilities of obtaining nitrogen from peat. They reported that from a peat bog of 2,500 acres with an average depth of $6\frac{1}{2}$ feet and an average of nitrogen content of two per cent. it was possible to produce 800,000 tons of sodium nitrate. Therefore the possible exhaustion of the Chile nitrate beds could be disregarded. A large quantity of combined nitrogen is lost in distillery wastes and methods for the recovery of this nitrogen in the form of ammonia have been presented but thus far they have proved impracticable.

PAPER. The possible exhaustion of the timber supply of the world, due largely to the use of wood pulp in the manufacture of paper, has led to the search for other crude materials from which paper could be made. For two years prior to 1908 chemists in the United States Forestry Bureau have been experimenting and they claimed that pulp which had hitherto only been made from wood could be made and manufactured

from ordinary cornstalks. The process of making the pulp is simple. It was found that the "soda cooked" process, which was the best for making finer grades of wood-pulp, paper yielded the most satisfactory results; moreover the cornstalks only need about two and a half hours of cooking by this process against the thirteen or fourteen hours required to soften the wood pulp. Several varieties of paper were produced. One grade was dark gray, thick and heavy like parchment and almost as tough as sheepskin. Then there was a lighter shade of the same character, two shades of yellow, and one of white. The white paper was made from the hard outside shell of the stalk and the yellow grades had a much longer fibre, and resembled paper made from linen rags or cotton. They were very soft and pliable. Many tons of cornstalks are available for this new manufacture; for at present the stalks are annually destroyed so as to get them out of the way, or else they are simply turned under the soil with a plow to add slightly to the fertilization. It was said that the new product will be one half cheaper than the print paper made from wood pulp.

ARTIFICIAL GEMS. The artificial production of diamonds by heating in an electric furnace to 4,000° C. a mixture of ferro-boron and charcoal was announced by M. Lemoine, and for this process he secured \$32,000 in London. This remarkable statement was discredited by Lemoine's disappearance from Paris in June, 1908, when the matter came before the courts. In the trial it was said that the De Beers Diamond Co. of South Africa had been approached for the purpose of inducing it to pay \$25,000,000 for the secret. In June also came the announcement that Miethe of Charlottenburg, Germany, had devised an entirely successful and practical method of making artificial sapphires, rubies, and emeralds and of any desired shape or size. It was claimed that these artificial gems can be made very cheaply.

MISCELLANEOUS. Improvements in the manufacture of artificial silk continued to be reported. Its use for gas mantles was recommended as such mantles are found to possess greater strength than the ordinary cotton tissues now used. Spun glass was finding new uses and clothing made of it was advocated as being incombustible, non-conducting, and resistant to acids, as well as perfectly insulating to electricity. Studies on the fading of colors showed that absolute fast dyes cannot be obtained and that all that can be done is to select the most resistant pigment, and to keep the fabrics under such conditions as to minimize the atmospheric influence. Through the use of a weak solution of potassium hydroxide it is claimed that the bodies and features of mummies may be restored so completely that the color of the skin, the contours of the features, and even diseases of the skin may be readily detected. A material resembling leather was described as being made from the fibre of a variety of cactus, common in the western desert lands of the United States. A process for retanning leather was patented, which it was claimed not only makes the leather flexible but added to its strength, elasticity, and wearing qualities, and also rendered it permanently waterproof. A new substitute for leather was reported from Scotland, which is composed of sea weed, carpet dust, Irish moss, and gums, combined by a secret process. This new product was made up into boots and shoes, which successfully stood the tests applied

to them. A new kind of damp-proof wall covering, made of "raw copper" and varying in thickness from 0.0012 of an inch to 0.006, which is both insect-proof and damp-proof, was described as being successfully used in Calcutta. Studies on the preservation of timber made under the direction of the United States Department of Agriculture, corroborated the value of using antiseptics for the preservation of wood. The best results were obtained from treatment by chemicals that kill the fungi on the wood or destroy the food value of the wood for them. A shell filled with a non-explosive sleep-inducing drug was an invention of Carl M. Wheaton that received the approval of certain scientists and naval authorities. Blau gas is common illuminating gas liquefied and delivered in ordinary cylinders. It came from Germany and caused some interest owing to its portable nature. Cutting iron with oxygen was found to accomplish the desired result in much shorter time than by the ordinary method.

CHESS. The world's championship in 1908 was contested for by E. Lasker and S. Tarrasch at Düsseldorf and Munich, the match lasting from August 17 to Sept. 30. Lasker repeated his successes of former years winning 8, drawing 5, and losing 3. The Anglo-American Cable match for the Newnes trophy was held on March 13 and 14, the American team winning by a score of 6½ to 3½. In the inter-collegiate cable match for the Rice trophy the Americans were also successful, with 3½ games won and 2½ games lost. The Düsseldorf Tournament, Aug. 3-17, was won by F. J. Marshall of Brooklyn, N. Y., and the Lodz (Russia) Tournament, Sept. 20-Oct. 15, was won by A. Rubinstein, with F. J. Marshall second. In the Vienna Masters' Tournament, Mar. 23-Apr. 17, O. Duras, G. Marcozy, and C. Schlechtes were tied for first place. In January, Janowski defeated Marshall at Paris, winning 5, losing 2 and drawing 3. The Sixteenth Intercollegiate Tournament was again won by Columbia, with 9½ games won and 2½ lost. Yale was second with a total of 6½ to 5½. In the Ninth Triangular College Chess League Tournament, Cornell was the victor, with a score of 5½ to 2½. Pennsylvania was second, winning 4 and losing 4. H. E. Bird of England and M. I. Tschigorin of Russia, two well known players, died during the year.

CHICAGO. See ILLINOIS.

CHICAGO, UNIVERSITY OF. An institution of higher learning at Chicago, Ill., founded in 1891 by John D. Rockefeller. The total attendance, including the summer quarter, in 1907-8 was 5038. In the autumn of 1908 it was 2371; 2527 of these students were in attendance only at the twelve weeks summer session, one of the regular quarters of the University year. Of the remainder, 1452 students were in arts; 381 in graduate schools; 183 in law; 180 in education; 172 in theology; and 141 in medicine. In addition to the departments listed, the University conducts evening and Saturday courses, non-resident lecture courses and correspondence study. It conducts also an academy for boys and has close affiliation with 13 other college institutions, academies and seminaries, and official coöperation with some 200 high schools in 18 States. The University Press has published 375 volumes and issues fourteen periodicals. The library contains 473,175 volumes. A fund of \$8,000,000 for a library building in

memory of Dr. Harper has practically been raised. The equipment of the University is valued at \$9,000,000; its endowment, \$17,000,000; its annual income, \$1,250,000. The President is Harry Pratt Judson.

CHILD LABOR. The agitation against the employment of children in mills, factories and stores, which was so pronounced in 1907 as to attract universal attention, continued during 1908 with unabated earnestness and success. An aggressive campaign of agitation and education was carried forward by the national and State child labor committees, with whom consumers' leagues coöperated. The fundamental principles on which this movement rests were brought out in addresses at the fourth annual meeting of the National Child Labor Committee at Atlanta, Georgia, Apr. 2-5, 1908. The chairman of this Committee, Dr. Felix Adler, found the basis of the agitation in the inconsistency of child labor with Americanism, that is, with the spirit of fair play, the feeling that it is unjust for adults to place heavy burdens on the weak shoulders of a child. Dr. Edward T. Devine emphasized the growing demand that the child be insured certain rights both for his own welfare and for benefit of the future citizenship of the State. Among these rights he included the right to normal birth, the right to grow up with full physical vigor, the right to be happy, the right to a useful education, and the right to such equipment and opportunity as shall enable him to progress beyond the achievements of his parents. Other addresses at this meeting emphasized the necessity of compulsory school education as preliminary to, and coördinate with, the regulation of child labor. Another point discussed was the connection between immigration and child labor.

The Southern States were the scene of most active agitation during 1908. North Carolina, South Carolina, Florida, Tennessee, Arkansas and Alabama had enacted new laws in 1907. The movement was greatly stimulated by the Nashville Child Labor Conference in October, 1907, at which the entire South was represented. It was also furthered by the Atlanta meeting in April, 1908, already mentioned. New laws were passed in 1908 by Kentucky, Louisiana, Mississippi, and Virginia. The Kentucky law prohibits the employment of children under fourteen during school terms, and restricts their employment at other times to farm and domestic work. It also limits the employment of those between fourteen and sixteen years of age to occupations not dangerous to health, morals, life or limb. The law also requires sanitary conditions and protection against dangerous machinery. The Louisiana law, brought about largely through the efforts of Miss Jean M. Gordon, Factory Inspector for New Orleans, is considered one of the best laws yet enacted by any State. It passed by the narrow margin of one vote in each house of the Legislature. It raised the age limit for boys from twelve to fourteen: fixed fourteen as the minimum age for both boys and girls in any mill, factory, mine, packing house, workshop, laundry, mercantile establishment and messenger service. Age certificates must be obtained from the factory inspector. The legal working day in the above industries is limited to ten hours for all women and girls and for boys under eighteen. Night work is prohibited for boys under sixteen and for girls under eighteen. Provisions for sanitation and safety were also included. In

Mississippi a child labor committee was organized late in 1907. Investigation showed that approximately one-fourth of the mill operatives were under fourteen and that one-half were illiterate. A law was then pushed through the legislature, though the highest legal limit as to age that could be secured was twelve years. Children under sixteen may not be employed in a mill or factory more than ten hours per day. County sheriffs and health officers were given the duties of factory inspection. Moreover the law was limited in its application to textile mills and those where children are employed indoors at work injurious to health or in operating dangerous machinery. The Virginia committee on child labor, organized in the fall of 1907, secured the passage of a compromise measure. It raises the age limit from twelve to thirteen after Mar. 1, 1909, and to fourteen after Mar. 1, 1910. The law does not apply to orphans or children with dependent relatives. A section arousing bitter opposition on the part of cotton mill and tobacco factory interests, was the provision that employment of children under legal age shall be *prima facie* evidence of guilt on the part of both employer and parents. At the same time the Virginia Legislature passed a compulsory education law. There was activity on the part of friends of the movement in every other Southern State. In some, efforts were made to secure new laws in 1908, and in others local child labor committees were being formed and investigations begun with a view to a legislative campaign in 1909.

In practically all of these States, more efficient factory inspection and law enforcement is a necessity. An excellent law passed by the Oklahoma Legislature was vetoed by Governor Haskell. Other States enacting laws in 1908 were Ohio, New York and New Jersey. The Ohio law prohibits the employment of children under fourteen; permits the employment of children of ages fourteen to sixteen provided they have schooling certificates; limits the hours of boys under sixteen and girls under eighteen to forty-eight hours per week and eight hours per day and restricts these hours to those between 7 A. M. and 6 P. M.; specifies a long list of occupations considered dangerous to life, limb, health, or morals in which children under sixteen may not be employed; forbids the employment of girls under sixteen in any capacity requiring them to stand continuously, or in any branch of the tobacco industry; and provides for the appointment of eight women factory inspectors.

In New York a considerable victory for the protection of child labor was won by the passage in June of the Page-Parker bill, regulating the employment of children in mercantile establishments. It was most vigorously opposed by the managers of some department stores, and closes a struggle lasting a dozen years between such managers and a group of social reformers. By this law the inspection of mercantile establishments is taken from local boards of health and placed in the hands of the State Labor Department, in which a bureau of mercantile inspection is created. By this law, New York takes its place alongside of Illinois, Massachusetts, and Oregon in the protection of women and children employed in retail stores. On Dec. 13 Commissioner John Williams of the New York Labor Department, issued a public statement in which he complained of the difficulty of securing conviction in cases for alleged violation of the

laws regarding the employment of women and children. Although tried before juries, and although in some cases evidence of violation was undisputed, thirty-two cases brought in September, October and November, 1908, resulted in not one conviction. Such difficulty has not been limited to New York by any means. The New Jersey law consists in a compulsory school attendance law raising the legal age of employment during the school period to fifteen years. The New Jersey law consists in a compulsory school attendance law raising the legal age of employment during the school period to fifteen years.

The vigorous but unsuccessful efforts made in 1907 in behalf of a national child labor law was converted in 1908 into an effort for a law applicable to the District of Columbia. Such a law passed May 28, 1908. It had been contended that no child labor existed in the District, but by Nov. 1 fully 8000 applications for permits under the new law had been made, 3500 of which were rejected on account of age or education. Other activities of the National Child Labor Committee consisted in the continuation of the effort to secure a national children's bureau at Washington to investigate and report on all matters pertaining to children and child life, and in the designation of the fourth Sunday in January as Child Labor Day.

Another feature of the child labor movement is the establishment of scholarships to provide for poor children thrown out of work by the new laws. These prevent numbers of such children from becoming public charges, enable them to go to school and prevent the suffering that would otherwise result from the reduction of family incomes. By the close of 1908 such scholarships had been founded in Chicago, New York, Philadelphia, Pittsburgh, St. Louis, Baltimore, Grand Rapids, Toledo, Los Angeles, Louisville, and Mt. Vernon, N. Y. The scholarship system is considered only temporary, being required as an assistance in the readjustment necessitated by progressive legislation.

In Canada several changes were made in the provincial laws. In Ontario the Factories Act was amended by limiting the working day for boys under sixteen to ten hours, forbidding the employment of children under twelve within doors and restricting the privileges extended to canning factories. The Shops Act was amended by raising the age limit from ten to twelve years. Manitoba forbade the employment of minors as bartenders. Alberta raised the age limit of children employed in mines from twelve to sixteen. British Columbia prohibited the employment of boys under fourteen and girls under fifteen, except in the canning of fish. See *The Annals of the American Academy of Political and Social Science* for May and July.

CHILDREN'S COURTS. See JUVENILE COURTS; JUVENILE DELINQUENTS; and PENALOGY.

CHILE, OR CHILI. A republic of South America, occupying the western coast of the continent from the river Samu, 17° 57' S. lat., to Cape Horn. It consists of 23 provinces and one territory. Area, about 292,400 square miles. Population, in Nov., 1907, 3,249,960, against 3,399,928 in 1905. The principal cities, with their population in 1907, are Santiago, the capital, 378,711; Valparaiso, 197,596; Concepción, 55,554; Iquique, 38,269; Talca, 38,000; Antofa-

gasta, 32,219; Chillan, 30,684. The government has been making efforts to secure immigrants, particularly from southern Europe and Japan. The number of immigrants has accordingly increased from 293 in 1905 and 1442 in 1906 to 8810 in 1907.

EDUCATION. Elementary education is free, but not compulsory. About 70 per cent. of the adult males are illiterate. In 1905 there were 2099 public primary schools, with 159,379 registered pupils, an average attendance of 102,925, and 4484 teachers. Private primary schools numbered 521, with 31,327 pupils. For secondary education there were 39 lyceums for boys, with 10,179 students; 23 lyceums for girls, with 3686 students; and 8 normal schools, with 727 students, besides one belonging to the Archbishopric, with 80 students. There are several schools for technical instruction, including schools of agriculture, mining, mechanics, electricity, design, etc. The *Sociedad de Fomento Fabril* maintains 17 industrial schools, with 3195 pupils. Higher education is provided in the National University, with about 1200 students, the Catholic University, and the National Institute of Santiago.

AGRICULTURE AND FORESTRY. The area and yield of the chief crops in 1905 were: Wheat, 365,000 hectares and 3,308,614 quintals (1907: 15,776,000 bushels); barley, 73,338 hectares and 809,288 quintals (1906: 978,664 quintals); maize, 21,112 hectares and 214,897 quintals (1906: 846,000 bushels); beans, 21,964 hectares and 243,367 quintals; potatoes, 27,278 hectares and 845,998 quintals. In 1906 vines covered 57,665 hectares, including 17,260 hectares under irrigation, these latter yielding the best grapes. The yield of wine in 1907 was about 55,000,000 gallons. Experiments in flax growing in southern Chile have proven successful, and in Feb., 1908, a bounty on flax-growing for a period of 12 years was decreed. In 1906 there were in the country 2,674,666 cattle; 746,150 horses, asses, and mules; 4,528,109 sheep; 436,739 goats; and 338,993 hogs. The Territory of Magellan owes its prosperity mainly to sheep breeding. In 1907 it was estimated to have 1,873,709 sheep, 37,804 horned cattle, 23,888 horses, 827 hogs, 122 mules, and 33 goats. The export of common wool in 1907 was 2,112,275 kilos, and of hides, 1,022,340 kilos. Chile is the only country of South America with a large area of forests suitable for the production of wood pulp. In a special message to Congress in 1908, the President called attention to the wasteful methods employed in exploiting the southern forests of the country, and recommended legislation to govern the cutting of timber, the burning of underbrush, and the clearing of commercial lands.

MINING. The chief mining products are nitrate, copper, coal, gold, silver, manganese, iodine, and borate. The production of nitrate in the year ending Mar. 31, 1908, was 2,058,920 tons, against 2,007,076 tons in 1906-7, and its exportation in 1907-8 amounted to 1,978,500 tons, against 1,892,115 in 1906-7. The production for the year 1908-9 was fixed by the Chilean Nitrate Association at 39,500,000 Spanish quintals (of 101.41 pounds each), or over 2,000,000 tons. In 1908 it was reported that a syndicate composed of J. P. Morgan & Co., Baring Bros., and the Anglo-South American Bank had acquired control of a large nitrate field, several nitrate factories, the railway running from

Aguas Blancas to the port of Coloso, and the port itself, which is private property. The production of the property in 1907 was reported to have been 3,500,000 Spanish quintals. The price paid for it was \$12,500,000. This was said to be the first entrance of American capital into the nitrate industry. The exports of iodine in 1907 were 289,236 kilos. The coal now mined in Chile is for the most part lignite, but extensive deposits of good coking coal have been discovered in the interior of the province of Arauco. The consumption of coal in 1907 amounted to 832,612 tons domestic and 1,489,154 tons imported coal, against 51,097 tons and 797,634 tons respectively in 1903. The production of copper in 1907 was 27,112 metric tons. The salt deposits are said to be the greatest in the world. Placer mining is an important industry in the Territory of Magellan. In 1907 the export of gold ores was 18,960 kilos; silver ores, 219,918 kilos. In 1907 the government paid a bounty of 50,195 pesos on the production of 1,673,159 kilos of sulphuric acid (about 1.1 cent per kilo). A native company capitalized at \$500,000 has put an extensive cement plant in operation at Calera, a few miles from Valparaiso, where large deposits of the requisite materials are found. The annual capacity of the plant is about 100,000 barrels. Natural gas and petroleum have been discovered in the township of Carelmapu, province of Llanquihue, about 500 miles south of Valparaiso, in the vicinity of a gold mining district, and not very far from the steel works now being erected at Corral.

MANUFACTURES include the preparation of foods and beverages, textiles, clothing, leather, vehicles, and pottery, in addition to the chemical and metallurgical industries connected with mining. In 1905 there were 10,152 industrial establishments. The department of Santiago contained in 1906, 1051 industrial establishments, with at least four employees each, having an invested capital of 54,476,422 pesos, using up annually raw materials to the value of 38,605,000 pesos, and having an annual production of 83,409,000 pesos. There are 22 modern, well-equipped shoe factories. In the Territory of Magellan there are, in connection with the sheep raising industry, two large refrigerating plants, one of which shipped 120,000 frozen sheep in 1907, besides tallow, soap, stearin, and salted meat factories. Shipbuilding is a new industry. In 1907 the shipyards at Valdivia built six small steamers and fifty launches.

FOREIGN COMMERCE. In 1907 the total imports amounted to 293,681,855 pesos (of 36.5 cents each), against 236,040,991 pesos in 1906, and the total exports, 280,080,730 pesos, against 289,513,522 pesos in 1906. The decline in exports is entirely due to the decline in value of the nitrate export. The leading imports in 1907 were, in pesos: Coal, 29,783,080; cotton goods, 36,334,739; woolen goods, 18,720,686; industrial oils, fuel, etc., 40,876,550; iron and steel goods, 35,060,364; industrial machinery, 18,440,997; mining tools and machinery, 10,003,267; rolling stock for railways, 11,268,931; vegetable products, including wheat, flour, rice, sugar, coffee, tea, etc., 30,339,127; animals and animal substances, including cattle, fish, leather, tallow, etc., 21,302,447. The leading exports in 1907 were, in pesos: Nitrate, 206,202,950 (1906: 217,317,015); copper, ingots, and ores, 25,949,000; iodine, 4,202,000; borate of lime, 3,961,000;

415. The trade with the principal countries of origin and destination in 1907 was as follows, in pesos:

From and to	Imports.	Exports.
Great Britain	113,502,732	139,666,884
Germany	74,310,374	55,819,019
United States	31,124,384	24,843,462
France	16,093,564	16,224,086
Belgium	10,197,301	3,724,218
Argentina	10,015,251	2,746,681
Peru	8,795,298	2,820,653

leather, 2,547,000; fruits, grains, etc., 11,851,111. NAVIGATION AND SHIPPING. In 1907 the ports of Chile were entered by 13,971 vessels of 24,646,751 tons, and cleared by 13,952 vessels of 24,159,898 tons. The Chilean merchant marine (100 tons and over) consisted in 1907 of 87 steamers, of 66,020 net tons, and 63 sailing vessels, of 48,589 tons.

INTERNAL COMMUNICATIONS. In 1907 there were 3289 miles of railway, of which the government owned 1543 miles and private companies 1746 miles. In June, 1908, the government lines had 587 miles under construction. The Longitudinal Railway is designed to connect the country from north to south, from the town of Arica (18°1' S. lat.) to Puerto Montt (44°29' S. lat.). It is divided in three sections: From Arica to Ligua (18°1'—33°), 1331 miles; from Ligua to Victoria (33°—38°16'), 402 miles; and from Victoria to Puerto Montt (38°16'—44°29'), 345 miles. Of the first section, 388 miles have been completed; the second has been entirely completed; of the third 283 miles have been completed. The railway from Arica to La Paz, Bolivia, was under construction; this is to form a link in the Pan-American Railway. The cross-continental line between Valparaiso and Buenos Ayres is broken by only a four hours' stage ride. Part of the trans-Andine line between Los Andes, Chile, and Mendoza, Argentina, was open for traffic. The length of telegraph lines in 1905 was 11,837 miles.

BANKS AND MONEY. There is no national bank. The condition of the 24 banks in the country on Dec. 31, 1907, was as follows, in pesos: Paid-up capital, 124,040,526; reserve and guaranty funds, 25,765,953; deposits, 415,205,924; cash on hand, 88,745,808; bonds, securities, real estate, and other property, 25,596,021; advances, 478,548,847; total assets and liabilities, 811,363,263. The most important of these banks is the Bank of Chile, with a subscribed capital of 30,000,000 pesos and cash on hand amounting to 39,664,406 pesos. On June 30, 1908, the savings banks had 198,419 depositors, with 22,876,142 pesos of deposits. The gold peso is worth 36.5 cents. The money in circulation consists mostly of paper, of which about 150,000,000 pesos are in existence. The paper peso fluctuates in value. On Dec. 10, 1907, gold was quoted at a premium of 125 per cent., against 46 per cent. on Sept. 1, 1907, and 30 per cent. on June 30, 1906. The paper money is to be gradually exchanged for new legal tender currency at full value, and to this end the government is accumulating gold. On June 30, 1907, the accumulation of gold amounted to £5,881,512—the equivalent of 78,420,160 gold pesos. In addition to this, the President was also authorized by Congress to contract a foreign loan of £4,500,000 to guarantee the currency.

COMMERCIAL CRISIS. Towards the end of 1907 a severe commercial crisis set in, due mainly to the following factors: The economic situation in Europe and the United States and the consequent pressure on Chilean customers for the immediate payment of debts; the fall in the price of copper, which led to the closing of 40 per cent. of the copper mines; the reaction after the boom of 1904 and 1905, when numerous companies were floated in agricultural, mining, nitrate, and other enterprises, many of which had gotten into difficulties and whose shareholders were anxious to dispose of their holdings; and the necessity of meeting the obligations incurred to repair the damages of the earthquake of Aug., 1906. As was shown above, there resulted a great depression of the paper peso, and by Dec., 1907, two banks were closed. Many importing orders were cancelled. The redeeming features of the situation were the prospects for good crops and the prosperous condition of the nitrate business.

FINANCE. The accepted budget for 1908 estimated the revenues at 224,000,000 pesos paper, to be derived mainly from export duties on nitrate, import duties, the alcohol tax, the railways, and post office. The expenditures were estimated at 65,230,892 pesos gold and 157,715,666 pesos paper. These include 5,795,000 pesos gold and 33,221,083 pesos paper for the Ministry of the Interior; 140,333 and 21,847,716 respectively for Public Instruction; 18,656,146 and 14,332,237 respectively for Finance; 1,682,020 and 20,952,477 respectively for War; 9,324,269 and 11,620,797 for Navy; and 28,571,327 and 42,310,960 respectively for Industry and Public Works. The external debt stood on Dec. 31, 1906, at 280,634,400 gold pesos; the internal debt at 6,399,700 gold and 147,480,965 paper pesos.

ARMY AND NAVY. The army consists of a militia in which all able-bodied citizens between eighteen and forty-five years of age are liable to service. The recruits are generally called in at the age of twenty-one years and serve six months with the colors; this is followed by nine years in the first reserve, and then in the second reserve until the age of forty-five is reached. The second reserve is organized as a territorial army. The annual contingent is about 6200; the permanent peace army consists of 849 officers and 4757 enlisted; and the war strength, including the reserve, is about 95,000 of all grades. The effective navy consisted, at the beginning of 1908, of 1 battleship of the third class, 7000 tons; 2 armored cruisers, 15,700 tons; 4 protected small cruisers, 14,500 tons; 9 destroyers, 4000 tons; 5 torpedo boats, 650 tons; total, 21 ships of 41,850 tons. The personnel of the navy consists of about 4600 officers and men. The coast artillery corps numbers about 1200 officers and men.

The President in 1908 was Pedro Montt, whose term is Sept. 18, 1906-1911.

HISTORY. Congress was opened on June 1, 1908. The year, in the main, was marked by the existence of friendly relations with the other South American republics, and although questions between Chile and Peru, relating to the retention by the former of the provinces of Tacna and Arica, were still pending in 1908, it was expected that they would soon be amicably adjusted. A commercial treaty between Chile and Argentina was under consideration during the year. On Sept. 2 the premier read the gov-

ernment's programme to the Congress. The government, he said, was chiefly occupied in carrying out reforms tending to the development of the country's economic resources and in restoring a sound currency system. At the same time it would aim at improving the condition of the working people and at removing the causes of dispute with employers. A treaty of navigation and commerce with Ecuador was signed in September. It provides that various Ecuadorian products, including sugar, coffee, and cacao are to be admitted to Chile free of duty, and the same privilege is to be accorded by Ecuador to Chilean saltpetre, guano, cereals, and wood. The two governments also agreed to make arrangements for subsidizing a steamer service between Chile and Ecuador. According to the budget estimates for 1909, which amounted to \$75,000,000, there was a reduction of \$5,000,000 from the previous year. The American battleship fleet in its voyage around the world entered the harbor of Valparaiso on Feb. 4 to salute the official representatives of Chile, and departed without dropping anchor. The American torpedo division was piloted by Chilean warships along the inner route from the Straits of Magellan to the harbors near the Peruvian frontier.

CHIMNEYS. The tallest chimney in the world was completed during the year 1908 at the plant of the Boston and Montana Copper and Silver Mining Company, of Great Falls, Montana. It exceeded by 40 ft. the next highest chimney in the world and by 140 ft. the next highest in America. It is 506 ft. high, has a foundation 74 ft. in diameter, an interior top diameter of 50 ft., an exterior top diameter of 54 ft., and was so designed that 60 ft. additional may be added if desired. The barrel of the chimney has a circular ring section, but the lower 46 ft. which forms the base is octagonal in exterior outline. The chimney has four separate batters, the upper 180 ft. having 1 per cent., the next 100 ft. 2 per cent., the next 180 ft. 3½ per cent., and the octagonal base 4 per cent. A heat protecting lining, 4 in. thick, extends from top to bottom. The cost was about \$200,000.

CHINA. An empire occupying the greater part of eastern Asia. Its area is estimated at 4,376,400 square miles. Estimates of its population vary from 330,130,000 to 438,214,000, the latter being the estimate of the customs authorities in 1906. The empire consists of China proper, with an area of about 1,532,000 square miles and a population estimated at from 320,500,000 to 407,253,000; and the dependencies of Manchuria (q. v.), 363,000 square miles, and from 5,500,000 to 16,000,000 inhabitants; Mongolia, from 1,076,000 to 1,368,000 square miles and from 1,850,000 to 2,600,000 inhabitants; Tibet (q. v.), from 463,000 to 814,000 square miles, and from 2,350,000 to 6,500,000 inhabitants; and Chinese Turkestan, Kulja, Zungaria, and outer Kan-su, all comprised in the province of Hsin-Ching, lying between Mongolia on the north and Tibet on the south, with from 530,000 to 1,890,000 square miles, and from 1,200,000 to 4,100,000 inhabitants. For the various cessions and leases of Chinese coast territory to other powers, see under their respective titles.

Chinese official investigation places the number of Chinese in foreign countries at 6,800,000, mostly in Siam, Java, Malaysia, and neighboring

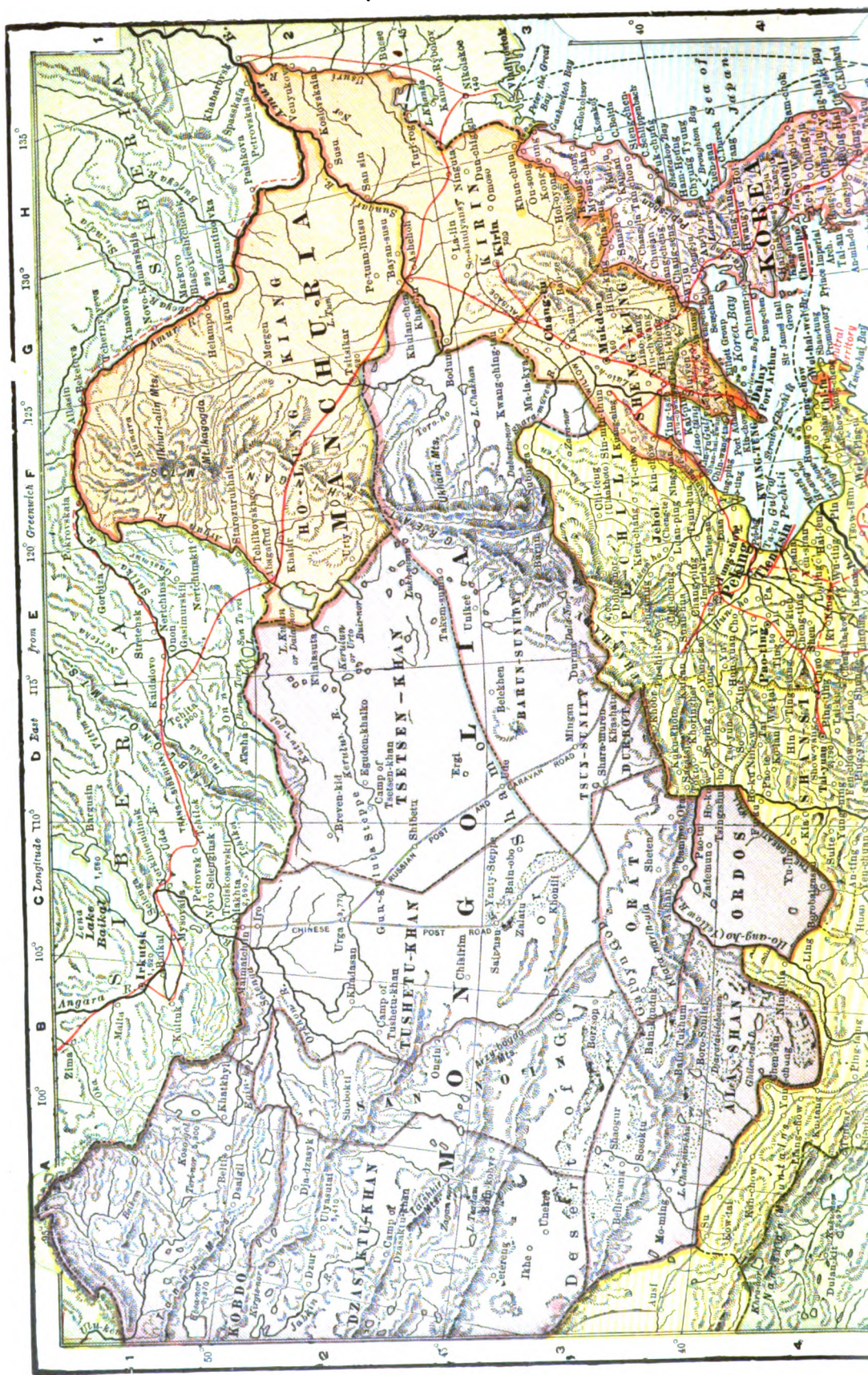
countries. There was in 1908 a wave of Chinese emigration to outlying regions of the empire, particularly northern Manchuria and Mongolia. In the latter country the native nomadic tribes were in some cases settling in villages and becoming farmers in order to be saved from extinction. The number of foreigners living in China in 1907 was estimated at 69,852, distributed among 2,595 firms and including 2,862 Americans, 9,205 British, 2,201 French, 3,553 Germans, 45,610 Japanese, 3,188 Portuguese, 479 Russians, etc. The population of Peking, the capital, is estimated at from 500,000 to 1,650,000; a census taken in 1908 gives 128,008 families, which would give, on the basis of 5.5 persons to the family, 693,044 inhabitants. Siangtan and Signan, inland cities, are reported to have 1,000,000 inhabitants each. The more populous treaty ports are: Tientsin, 800,000; Newchwang, 74,000; Chungking, 705,000; Changsha, 230,000; Chefoo, 100,000; Hankow, 778,000; Wuhu, 122,000; Nanking, 270,000; Chinkiang, 181,000; Shanghai, 651,000; Soochow, 500,000; Hangchow, 350,000; Ningpo, 260,000; Foochow, 624,000; Canton, 900,000; Amoy, 114,000; Chancha, 230,000.

EDUCATION. The old system of education, confined to Chinese classics, was swept away by the Imperial Decree of Sept. 3, 1905, abolishing the old system of examination as a condition of obtaining state employment. Numerous schools and colleges for young men and women have been started in the large towns, a large number of students have been sent abroad, particularly to Japan; and the primary schools, which were neglected at first, are now receiving more attention. At Peking there is an Imperial university, a government institution, where Western science and languages are taught by European and Japanese professors, and Chinese subjects by Chinese. In 1908 the government decided to establish at Peking a university of the first rank, consisting of eight colleges, viz., foreign languages, Chinese literature, science, commerce, law, medicine, agriculture, and engineering. To meet initial expenses, 2,000,000 taels (about \$1,400,000) were assigned, and large tracts of land purchased for buildings. The Union Medical College at Peking was opened in 1906, the funds being raised by public subscription. In 1908 there were in Peking 183 schools for boys and 17 for girls, with 1,200 male and 100 female teachers, and 17,053 pupils (771 girls). This is the result of two years' work. Tientsin has a Chinese university, with European and Chinese professors, an Anglo-Chinese college, an industrial school with Japanese instructors, and a medical college. Canton has a college of foreign languages, an agricultural school, a law school, etc. Nanking has a military and a naval college, as well as government middle schools and a normal school, equipped with laboratories and natural history collections; work has begun on new buildings for the military college, which are to accommodate 8000 students for a three years' course. Military schools have also been established in connection with the arsenals at Tientsin, Shanghai, Foochow, Canton, and other cities. Colleges have been founded in 15 provincial capitals. Buddhist temples are being converted into school-houses. Arrangements have been made by the management of the Imperial Railways of North China, in conjunction with the Chinese Engineering and Mining Company, for opening an

engineering and mining college at Tong-shan for 140 students. Mission schools exist in all the large treaty ports and in several inland cities. In 1908 the German consul at Canton, acting upon instructions from his government, applied to the taotai for permission to open in the city a school for teaching the German language to Chinese students.

AGRICULTURE. The land holdings are generally small, and are owned in freehold by families. No land can be sold until all the near kindred have refused to purchase. The rainfall is inadequate, especially in the north, and irrigation is resorted to on a large scale. The principal crops of the north are wheat, barley, maize, millet, and other cereals, beans, and peas; in the south, rice, sugar, indigo, and cotton. Tea is cultivated in the west and south, and silk in every province. For details of the tea and silk trade see under *Commerce*. About one-fourth of the world's supply of raw silk comes from the Chinese Empire. Under the decrees of 1906 the production of opium has been greatly restricted and will cease in ten years. In some portions the cultivation has been entirely suppressed, violators of the prohibition being liable to the confiscation of their land. In 1907 the production of native opium amounted to 6,424,964 pounds. Camphor is produced in the province of Fukien, opposite Formosa, and is now a government monopoly. A large part of the cotton product is consumed in the homes of the immediate producers. The quantity entering commercial channels, either for export or for consumption in local mills, was estimated for 1907 at 428,000 bales of 500 pounds each. The cotton is of very short staple. In 1906 there was a general scarcity, amounting to famine over large areas. High prices of food prevailed in every part of the empire and resulted in many of the local risings which marked the year 1907. The various crops of 1907, with few exceptions, were fair or excellent in almost all the provinces; but the full benefit of the good harvest could only be felt as the year drew to a close. The Yangtse valley, as a rule a contributor to the necessities of distant provinces, was for the greater part of the year dependent on supplies from other districts, and the scarcity was only relieved by large importations from Indo-China, where splendid harvests were reaped. The indications for 1908 were normal crops for Shansi and Honan, but almost complete failure of the wheat crop in Chihli and Shantung; millet, maize, poppy, and other crops also fared badly in the northern provinces. In the province of Kwangtung, in the south, the rice crop has been almost entirely destroyed by a flood. The condition in the Yangtse basin was so bad that the Governor-General of Nanking issued a proclamation forbidding all shipments of grain from the provinces under his jurisdiction.

MINING AND METALS. Coal is found in every province. As far as now known, the larger part of the coal of China is in the northern fields, estimated to contain 605,000,000 tons of coal—about 45,000,000 tons less than the estimate for the Appalachian fields. In North China, particularly in the province of Chihli, the Chinese Engineering and Mining Company, a British corporation, owns coal mines which in 1908 were the most productive in China; their output in 1906 was 958,675 tons. The coal mines of the Shantung Mining Company (see KIAO-CHAU), a Ger-





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man corporation, were being worked at Fengtse and Poshan, the product of which in 1906 was 163,000 and 7,136 tons respectively. This company also manufactures briquettes. A very good anthracite is mined by the Pekin Syndicate, a British corporation, in northern Honan. The Tsingkiang mine, in Shansi, yields regularly both bituminous and anthracite coal of good quality. In Manchuria and in the anthracite field of Shansi iron ore is found in conjunction with coal. The working of the mineral deposits in the Anki district of southern Fukien by a Chinese syndicate was authorized by the Board of Public Works. Preliminary investigations showed this concession to contain coal and iron in great abundance, as well as lead and limestone. The mineral resources of the island of Hainan have attracted much attention and two Chinese obtained concessions to work tin and other mines in the Tamchow district. The tin mines are very rich, the ore containing 90 per cent. of metal. The Ta-yeh (Hupeh) iron mines, 70 miles below Hankow, on the Yangtse, were estimated to contain 273,000,000 tons of ore. In 1904 a Japanese company was given the right to work these mines for thirty years. About 150,000 tons of ore annually are shipped from these mines to Japan, and 60,000 or 70,000 to the Han-yang iron works, which have contracted to buy annually from 70,000 to 100,000 tons of ore during the period of concession. The Imperial foundry at Han-yang, on the Yangtse, opposite Hankow, in 1908 was turning out from 5,000 to 8,000 tons of rail a month. By an Imperial decree, all Chinese railways must buy their materials from the Han-yang works whenever possible, and an immense plant for supplying passenger and freight cars, bridge steel, and structural steel was to be erected in 1908. In 1907, the United States Steel Corporation ordered a trial shipment of pig iron ore from these works, and on July 5, 1907, there were shipped 1,500 tons from Hankow direct to Brooklyn. About 15,000 tons of coke for these works are derived annually from Ping-hsiang, in Kiangsi, by way of the Hsiang river. In June, 1908, it was reported that the Han-yang works, the Ping-hsiang coal mine, and the Ta-yeh iron mine were to be amalgamated into a corporation with a capital of 1,000,000 taels, exclusively Chinese. The change has been made in order to enable the works to furnish the supplies needed for railways in China, and to manufacture arms. Antimony refining works have been established at the port of Wuchow, the funds having been provided by the provincial government, which has assumed the sole right of buying antimony in the province of Kwangsi. The antimony mines are in the far west of the province. For a time work was being carried on only spasmodically, owing to the difficulty of obtaining good coal at a low price. Now, however, coal mines have been opened in the northeast of the province, and toward the middle of 1908 it was reported that coal of a suitable quality and price would shortly be obtainable. The annual capacity of the works is 1,300 tons of pure metal. Other ores mined in China are copper, zinc, silver, and gold.

MANUFACTURES. The modern textile industry has taken root in parts of the country. Steam filatures for winding silk from cocoons have been established at Shanghai, Canton, Chefoo, and other places. In 1906 there were 27 modern cotton spinning mills, of which 12 were in Shanghai, besides one in Hongkong, which turn out

yarn for the Chinese market. These 28 mills have about 750,000 spindles, and consume annually about 375,000 bales of cotton. To supply the demand of the weaving mills, there were imported in 1907 2,273,419 piculs (of 133½ pounds each) of cotton yarn. The government is encouraging the establishment of modern industries by natives, and, as in the case of the Han-yang iron and steel works, is itself taking a hand in establishing them. In 1908 an order was issued that only domestic cloth should be used in the uniforms of the army, the police, and the schools. This order affects about 200,000 soldiers, 200,000 police, and over 600,000 pupils and students, all of whom receive military drill. Some of the cotton mills have been financed by the government. There is an increasing demand for underwear of the foreign type by all classes of the population, male as well as female. In 1907 the Canton Knitting Company began operations with a steam factory having 34 machines for the manufacture of foreign hosiery and underwear. The output of lace by the Amoy lace guild is increasing steadily; it is made by hand from the best Irish linen thread, compares favorably with the best laces, and finds a market principally in the United States. The government of Hupeh province is to establish a screw and nail factory. In Wuchang a thread factory is to be established with a capital of 500,000 taels (about \$350,000), and in 1908 a paper mill was being erected. In the spring of 1909 English experts were to arrive to teach the people these industries. The Hankow flour mills alone turn out 33,750,000 piculs a year, the grain coming chiefly from Honan. Modern flour and rice mills are being established in the large cities. Soap factories have been established in Nanking.

FOREIGN COMMERCE. The imports (less re-exports) and domestic exports of China in 1907 amounted to 416,401,369 and 264,380,697 Haikwan taels respectively, against 410,270,082 and 236,456,739 Haikwan taels respectively in 1906. (The average value of the Haikwan tael in 1906 was 80 cents, and in 1907, 79 cents.) The most significant features of the import trade in 1907 were as follows: The general condition of trade was depressed, due to the crop failure of 1906 and the overtrading of 1905 and 1906. Importations were made only for immediate disposal, and the holders of large stocks were waiting for their depletion. The excess of 6,131,287 Haikwan taels in the value of imports over that of 1906 is due mainly to the exceptionally large imports of flour and rice, and, to a much smaller extent, to increased imports of railway material. The value of flour and rice imports in 1907 exceeded that of 1906 by Haikwan taels 20,356,000, while that of railway material increased by Haikwan taels 1,364,822, giving a combined increase of Haikwan taels 31,720,822. Deducting this sum from the total imports, there would be left only Haikwan taels 385,000,000 for ordinary imports. The decrease is most marked in cotton goods, which fell from Haikwan taels 181,452,953 in 1905, to Haikwan taels 152,727,845 in 1906, and Haikwan taels 118,915,923 in 1907. In 1905 they constituted 40 per cent. of all imports; in 1906, 37 per cent.; and in 1907, 27 per cent. Plain fabrics (undyed shirtings, sheetings, T-cloths, drills, and jeans) were imported in 1907 to the number of 9,786,025 pieces, against 20,247,123 pieces in 1906 and 27,724,980 pieces in 1905. By far the greater part of the decrease was in goods of American origin, chiefly sheet-

ings and drills, in which previous over-importation was most marked. The principal countries of supply were as follows (number of pieces):

	Great Britain	United States	Japan	British India.
1905	13,548,025	12,566,093	780,580	650,636
1906	10,785,227	8,544,165	733,436	85,003
1907	8,224,950	578,647	840,401	67,905

The imports of cotton yarn amounted to 2,273,419 piculs (1 picul = 133 1-3 lbs.), against 2,541,222 piculs in 1906. Indian yarn fell off by 200,000 piculs, Japanese by 90,000. Fancy cotton, i. e., all cotton fabrics not classed above as plain, were imported to the value of Haikwan taels 32,378,590—an increase of Haikwan taels 9,973,982 over 1906. Metal imports amounted to Haikwan taels 19,942,285—an increase of Haikwan taels 2,652,430 over 1906. Rice imports amounted to 12,765,189 piculs, against 4,686,452 piculs in 1906, the Kwangtung ports alone taking 9,893,232 piculs. Flour imports, distributed evenly among northern and southern ports, were 4,414,383 piculs, against 1,784,681 in 1906. (For the causes of the great increase of rice and flour imports, see above under *Agriculture*.) Cigarette imports declined from Haikwan taels, 5,846,781 in 1906 to Haikwan taels 3,714,760. Aniline dyes fell off slightly, but artificial indigo increased from 73,848 piculs in 1906 to 98,442 piculs. Kerosene oil rose from 128,687,690 gallons in 1906 to 161,284,355 gallons. The increase is covered by American oil, which rose over 50 per cent., while Borneo oil fell off by 1,011,004 gallons, and Sumatra oil increased by 316,259 gallons. The import of Indian and Ceylon tea increased by 48,888 piculs—nearly the whole of the import going to Hankow for mixing purposes. The re-export of Amoy tea, imported from Formosa, again fell off heavily, and another year like 1907 will see the total extinction of this trade, formerly so flourishing. The import of sugar was 5,723,871 piculs, a decline of 821,871 piculs from 1906. There was no marked change in the relative position of the countries of import. All the leading European countries showed slightly smaller values than in 1906. The United States showed a decrease of Haikwan taels 7,532,733, due entirely to the almost complete cessation of the piece goods trade. The decrease would have been very much greater, were it not for compensations in other imports. The value of British Indian imports has remained about unchanged. Japanese imports show a slight loss, due in part to Formosa tea. Hongkong shows an increase of about Haikwan taels 11,000,000.

The most significant features of the export trade are as follows: Silk, raw and manufactured, increased from Haikwan taels 71,295,525 in 1906 to Haikwan taels 89,084,034, about 25 per cent. All descriptions show an increase, with the exception of wild raw silk, which lost 1,659 piculs, and unclassified products, which show a slight reduction. White raw silk increased from 3,628,959 pounds in 1906 to 3,801,515 pounds; yellow silk increased from 1,584,404 pounds in 1906 to 1,793,685 pounds; white filatures increased from 6,107,939 pounds in 1906 to 6,704,457 pounds; waste silk exports were 14,377,605 pounds, exceeding any previous year;

silk piece goods and Shantung pongees showed increases of 25 and 50 per cent., respectively.

The season was favorable to the tea crop, and tea shipments were larger than in any year since 1903. They amounted to 1,610,125 piculs, valued at Haikwan taels 31,736,011, showing an increase of 205,997 piculs and Haikwan taels 5,106,381 over 1906. Leaf tea regained some of the ground lost in recent years to brick and tablet tea, the former having risen from 808,094 piculs in 1906 to 995,170 piculs, while the latter, rising from 596,034 piculs in 1906 to 614,955 piculs, showed a much smaller increase. The total exports of tea, including those to Siberia and Mongolia, *via* Hankow, were 1,612,217 piculs (214,962,267 lbs.), against 1,412,780 piculs (188,371,000 lbs.) in 1906. The exports of black tea were 708,273 piculs; green tea, 264,802 piculs; brick, 604,226 piculs; dust, 22,095 piculs; tablet, 10,729 piculs; all kinds overland to Siberia and Mongolia *via* the Han river and Fancheng, 2,092 piculs. The leading countries of destination were as follows, in piculs:

	1905	1906	1907
Great Britain	356,853	87,270	157,372
Hongkong	83,659	91,373	99,141
Total British Empire	468,942	205,457	292,274
Russian Empire	603,327	947,833	990,803
Rest of Europe	60,075	69,242	91,509
United States	182,123	152,029	201,740
Canada	9,624	12,126	13,382

The amounts of tea sent in 1907 to Russia by the various routes were as follows, in piculs: European ports, 189,002; overland, *via* Tientsin and Kiakhta, 190,542; Pacific ports, 609,167; overland from Hankow, 2,092. The route *via* the Russian Pacific ports and the Siberian Railway was gaining at the expense of the old highways of trade. Indeed, as regards the old overland route *via* Tientsin and Kiakhta, the Tientsin trade report found reason to doubt whether any considerable portion of the tea sent that way reaches Russian territory at all, the probability being that it is consumed mainly within the confines of the Chinese Empire.

Beancake shipments were 4,182,009 piculs—an increase of 265,966 piculs and Haikwan taels 2,084,202 over 1906. Owing to the keen demand in Japan, the chief foreign customer, the average price rose from Haikwan taels 1.80 to Haikwan taels 2.19 per picul. The rise of price in the north sent many purchasers to the Yangtse, with the result that 13 per cent. of the whole direct export went from Hankow, Chinkiang, and Shanghai. Manchuria contributed 83 per cent. of the total export, and Shantung only 3 per cent., against 20 per cent. in 1906. Raw cotton, of which also the bulk goes to Japan, amounted to 988,055 piculs, an increase of 28 per cent. over 1906. Nankeens, chiefly sent to the Russian ports and Hongkong, amounted to 51,233 piculs—barely half the previous year's shipments. The export of matting increased. The wool export was 355,829,000 pounds, of which the United States took 273,909,000 pounds, valued at Haikwan taels 2,829,828.

The following table shows the foreign trade of China for 1907 by countries. The column for imports shows a greater total than in the

above statement of imports, owing to the fact that re-exports are included:

	Imports (including re-exports).	Domestic exports.
	Haikwan taels.	Haikwan taels.
Great Britain	77,562,700	12,107,645
Hongkong	155,642,016	97,226,434
British India	32,913,847	3,179,695
Singapore and Straits Settlements	5,347,638	4,059,515
Australasia	777,952	199,563
South Africa and Mauritius	130,580	55,484
Canada	1,130,374	701,466
Total British Empire	273,505,107	117,529,802
Japan	57,461,410	39,347,476
United States	36,903,476	26,597,660
Russia	913,351	17,201,208
Germany	16,177,400	6,109,195
Belgium	10,581,048	3,978,652
France	3,158,626	30,658,585
Other countries	30,371,244	22,958,119
Total	429,071,662	264,380,697

The coastwise trade of all the treaty ports was as follows, in Haikwan taels: Imports, 137,552,030, and exports, 126,669,687, against 158,276,129 and 133,715,257 respectively, in 1906. The trade of the principal treaty ports in 1907, exclusive of the imports of native produce in the coastwise trade, for which no separate returns were published, is given in the following table, in Haikwan taels:

	Net foreign Imports	Exports of native produce*
Newchwang	10,587,235	15,711,583
Tientsin	61,208,744	17,253,215
Chefoo	10,630,697	10,719,072
Kiukiang	16,416,053	8,478,325
Chungking	13,322,204	11,079,936
Hankow	45,157,364	60,427,393
Kiukiang	11,123,331	16,351,841
Wuhu	9,148,164	9,173,633
Nanking	5,315,221	3,552,873
Chinkiang	19,666,665	5,520,197
Shanghai	46,328,982	73,737,546
Ningpo	12,509,099	9,024,036
Hangchow	4,789,000	10,301,995
Foochow	7,862,349	9,578,919
Amoy	11,230,467	2,819,724
Swatow	18,038,741	14,258,476
Wuchow	5,335,616	3,822,393
Canton	29,894,602	55,342,558
Kowloon	29,820,314	16,192,146
Lappa	12,541,216	4,567,569
Mengtaz	5,973,115	3,563,329
Antung	2,033,054	2,185,455
Dairen	10,423,003	3,231,145

* Including exports to other Chinese ports.

Attempts to regulate the opium habit, which has done infinite harm in China, have been made for several years, and in 1908 an agreement was made with Great Britain, restricting the importation during the year of opium from India. See *History*.

SHIPPING. The following table shows the number of vessels, both steam and sail, and ton-

nage, entered and cleared at the treaty ports in 1907, distinguishing the principal nationalities:

	Vessels.	Tons.
British	27,495	33,316,618
German	5,864	6,639,767
Japanese	29,296	15,598,213
French	5,072	4,712,188
American	549	1,045,899
Norwegian	1,110	1,067,110
Russian	147	264,042
All other foreign	1,206	779,282
Total foreign	70,739	63,423,119
Chinese modern shipping	33,772	11,598,697
Chinese junks	113,421	5,087,608
Total Chinese	147,193	16,686,305
Grand total	217,932	80,109,424

The following table shows the percentage of British, German, Japanese, and Chinese shipping at the Chinese treaty ports in 1907, giving the percentage of the total tonnage employed, as well as of the tonnage employed, respectively, in the foreign and coastwise trade:

	Percentage of total tonnage	Percentage of tonnage in foreign trade	Percentage of tonnage in coasting trade
British	41.59	48.12	44.74
German	8.29	10.60	7.26
Japanese	19.47	15.33	9.83
All other foreign	9.82	12.61	2.90
Total foreign	79.17	86.66	64.73
Chinese	20.83	13.34	35.27
Total	100.00	100.00	100.00

In 1907 the modern Chinese merchant marine contained 50 steamers of 43,738 net tons.

INTERNAL COMMUNICATIONS. Roads are numerous, but badly kept. The canals and rivers, even more important for internal trade, are navigated by native junks, as well as modern steamers. The length of completed railway in 1907 was 3,746 miles, and of lines under construction, 1,622 miles. On March 28, 1908, was celebrated the opening of the line from Shanghai to Nanking, 193 miles. This line was regarded as a forerunner of a complete link between the coast and the undeveloped resources of the West. In January, 1908, the government concluded a loan of £5,000,000 for the construction of a line from Tientsin to Pukow, approximately 700 miles long. Work was begun at Tientsin on June 30, 1908. This will be an important trunk line. Starting from Tientsin, where it will connect with the Imperial Railways of North China, it will run in a southerly direction to the borders of Shantung, traverse the western district of the latter province, and effect a junction at Tsinanfu with the German line running from that point to Kiaochau and Tsingtau. Thence, by way of Ihsien, on the southwest border of Shantung, it will pass into the province of Kiangsu, eventually arriving at Pukow, the southern terminal on the Yangtse, opposite Nanking. It will serve a densely populated and exceedingly fertile country, and will be in connection with three open ports. The construction of the Amoy-Changchow branch of the Fukien lines was begun in July,

1907; it was to be completed in the spring of 1909 and was to be 36 miles in length. The line from Pekin to Kalgan, near the edge of the Mongolian plains, 140 miles long, was completed; it was built entirely by Chinese. The Chentung-Taiyuan branch of the Pekin-Hankow line was opened on December 6, 1907, the construction of the 182 miles having taken three years and three months; another branch from Kaifeng to Chen-chou was opened earlier in the year. Work on the Canton-Kowloon line was also being pushed. The Hsinmintun-Mukden line was redeemed by China at a cost of \$1,666,000. The proposal of China to extend the Imperial Railways of North China from Hsinmintun in a northwest direction to Fakumen, in southwest Manchuria, to the west of the Liao River, was at first vetoed by the Japanese government, on the ground that the line will compete with the Southern Manchurian Railway. Japan contended that in 1905, after the conclusion of the Russo-Japanese war, China agreed not to construct any main line in the neighborhood of that railway or parallel to it. Great Britain supported Japan's contention, notwithstanding the fact that China had made arrangements with a British syndicate for financial assistance in the construction of the line. Later, however, an accommodation was arrived at, Japan agreeing to the construction of the line on condition that it should not be within a minimum distance from the Manchurian line. In the middle of 1908 the Chinese government published a vast programme of railway construction, involving a southern trunk line from Pekin to Canton, 1,200 miles, of which the line from Pekin to Hankow, 754 miles, was in operation; a northern trunk line from Pekin to Urga, in Mongolia, of which the line to Kalgan (see above) had been completed; an eastern trunk line from Pekin to Aigun, on the Amur River, at the Siberian frontier, over 1,000 miles, of which the line from Pekin to Hsinmintun was in operation; and a western trunk line from Pingyang, on the Pekin-Hankow line, through Taiyuan, the capital of Shensi, to Lanchow, on the upper Hoang River, then through Tibet and into Chinese Turkestan to Kuldja, about 2,000 miles from Pekin. Besides these trunk lines there were to be a considerable number of branch lines covering the empire with a network of rails.

The telegraph lines have a length of over 23,470 miles, all under government control. The number of post offices and postal agencies in 1907 was 2,803, an increase of 707 over 1906.

GOVERNMENT. The form of government is that of an absolute monarchy. In practice it is limited by the existence of advisory bodies, such as the Grand Council, the Government Council, and the Board of Censors, and by the powerful viceroys. An Imperial decree of September, 1906, promised constitutional government when the people should be ready for it, and urged the introduction of reforms meanwhile. On Aug. 27, 1908, there was promulgated a constitution, containing guarantees of personal rights and promising a parliament for 1917. According to the edict of Nov. 6, 1906, the central administration is divided into ten departments, namely, the Boards of Foreign Affairs, Commerce, Civil Office, Revenue, Ceremonies, War, Punishments, Communications, Interior, and Education. The navy is under the viceroys of Tientsin and Nanking. The dependencies are under a department known as the Mongolian Superintendency. China proper is divided into 18 prov-

inces, under viceroys or governors-general, subdivided into prefectures and districts. Several prefectures are united into a tao, or circuit, under a taotai. In 1906 municipal self-government was introduced in Tientsin by Viceroy Yuan-Shih Kai. The Emperor Kwang-Hsu, who ascended the throne Jan. 22, 1875, died Nov. 14, 1908. The Empress Dowager Tze-hsi, who had been the real ruler since September, 1898, died the next day. The succession devolved upon Pu-yi, born in 1903, by the nomination of the Empress Dowager, and Prince Chun, father of the infant Emperor, and brother of Kuang-Hsu, became Regent. See *History*, below.

FINANCE. No statements of revenue and expenditure are published. The principal sources of revenue are the land tax, the salt monopoly, the *likin* or internal customs, and the maritime customs. The yield of the last amounted in 1907 to Haikwan taels 33,861,346. In 1901 the revenue of the empire was estimated at Haikwan taels 88,200,000, and the expenditure at Haikwan taels 101,120,000, one-fourth of the latter being the cost of the national debt. Owing to the increased expenditure resulting from the indemnity of 1901 on account of the Boxer outbreak, the viceroys and governors were instructed to increase their annual remittances to the Central Government by Haikwan taels 18,700,000 during the period 1902-1910. The national debt at the end of 1907 amounted to about \$618,000,000, including the 1901 indemnity of Haikwan taels 450,000,000. The capital of the indemnity is to be paid in 39 annual installments, which fall due on January 1 of each year up to 1941; interest at 4 per cent., payable half-yearly, amounts to Haikwan taels 18,829,500. The securities for the indemnity are the maritime customs and salt monopoly, otherwise unappropriated, and the native customs, or transit dues, within 16 miles of the ports. The proceeds are paid monthly to a commission in Shanghai. For the remission by the United States of a part of the Boxer indemnity, see UNITED STATES, under *Foreign Relations*. The charge of the national debt in 1907 was \$35,999,778.

ARMY AND NAVY. The military forces of China in 1908 consisted of the regular army (Lou-Kiun); the police army (Siun-djin Kinn); the auxiliary police army (Siun-djin-toué); the Imperial Guard (Hou-wei-Kiun); and the gendarmerie (Djin-teha-toué). The old organization consisted of the Manchu army of the Eight Banners (Pa-tchi); the Chinese army of the Green Flag (Lou-ying); the Mongolian and Tibetan militia; the Provincial militia and Special Reserves (Ioan-lien); and the special guards of the mandarins. Practically all of these organizations have come under the direct or indirect authority of the Minister of War. The armies of the Eight Banners and the Green Flag are little more than an army of pensioners, while the Provincial militia and the Special Reserves, and the Guards of the Mandarins form the real nucleus of the modern Chinese army. There was up to 1908 no regular budget for the entire army, old and new, but the sum total of the appropriations for the past year was approximately 60,000,000 taels or 210,000,000 francs. It was estimated that the annual budget for the new Chinese army when the thirty-seven divisions and auxiliary organizations are all formed, that is in 1913, will be about 92,000,000 taels, or 322,000,000 francs.

The regular field army (Lou-Kiun), organized and trained in a uniform manner, is intended for war purposes only, and is subject, exclusively, to the orders of the general government. Its formation was to be completed in October of 1912, when it will consist of thirty-seven divisions, having a total of 27,713 officers and 435,268 men, of which 13,357 officers and 377,789 men are combatants. On a war footing the complete organization of the thirty-seven divisions would have a total strength of 678,284 officers and men of all grades, of whom 567,284 are combatants. In 1920, if plans are carried out, there will be in the Chinese army thirty-seven active divisions, thirty-seven reserve divisions, thirty-seven mixed reserve brigades, and 111 depot battalions, with a total strength of 1,418,000 officers and men, and a fighting strength of 1,185,000 of all grades.

On the 1st of July, 1908, there were already in the service 9,696 officers and 189,385 men, the actual combatant strength being 5,417 officers and 165,277 men, of whom 120,000 were fairly well trained. These troops were organized into nine divisions and thirteen mixed brigades, consisting of 216 battalions of infantry, forty-three squadrons of cavalry, eighty-one mountain batteries, twelve battalions of engineers, ten battalions of train, and sixteen machine gun companies.

The Police Army (Siun-djin-Kiun) pertains to the Ministry of the Interior and relieves the regular army of the duty of maintaining order in the different provinces. The actual strength in 1908 consisted of about 47,000 officers and agents, and there were twenty-eight police schools with 5,440 pupils.

The Auxiliary Police Force (Suin-fang-toué) is a sort of provisional army, recruited from the old organization of the Green Flags and maintained by the province pending the complete organization of the regular army. In 1908 there were 130,000 fighting men in the 430 battalions and 119 squadrons of the old organization; all of which will cease to exist as such in 1920, when the units will become part of the regular army reserve.

The Imperial Guard (Hou-wei-kiun) is composed of Manchus of the Three Banners placed under the orders of the Emperor and constituting the palace guard. It formerly had an effective of 12,000 men, and was reduced to 3,000, while the actual strength is only 1,800, the gradual reduction being made for the purpose of creating a new organization to replace the old which is very much inferior to the infantry of the new regular army, of which a regiment of the 6th division is already on duty at the palace.

The Gendarmerie (Djin-tcha-toué) is a sort of provost guard and police troops for the army, which have already been organized in the 2d, 3d, 4th, 8th, and 9th divisions.

The armed forces of China in times of peace consisted in 1908 of about 690,000 combatants with 930 field guns, of which 120,000 regulars, 50,000 men of the police force, and 50,000 Mongolian cavalry are armed and trained in modern methods and could take the field against a modern army. In 1913 the organization of the regular army should be complete, according to programme, and number 400,000 men; in 1920 the organization of the reserves should be complete, and bring the total to 1,185,000.

NAVY. The navy consisted in 1908 of 6 protected small cruisers, aggregating 15,900 tons; 6 unprotected small cruisers, 12,400 tons; 5 gunboats, 2,800 tons; 4 destroyers, 3,590 tons; 5 torpedo boats, 600 tons. Total, 26 ships of 35,295 tons, showing an increase in 1907 of 565 tons. The crews number about 3,200.

MONEY, WEIGHTS, AND MEASURES. On October 5, 1908, an Imperial decree was issued, ordaining the introduction of a silver currency of which a coin weighing one K'u P'ing, or treasury tael, is to be the unit. The new tael and half-tael coins are to be 98 per cent. pure silver, and there will be subsidiary 10 cent and 5 cent pieces of 88 per cent. pure silver. The Board of Finance and the provincial authorities were ordered to take measures for the early introduction of the new coinage into general use. No ratio was fixed between the copper currency and the new tael coinage, and no indication was given whether the new coins were to be issued solely from mints under the direct control of the Board of Finance. The British Minister to China remarked that without provisions on these two points it could hardly be said that a national coinage is likely to result from the decree, though it is possible that supplementary enactments would safeguard the interests of the Central Government.

In 1904 a memorial was submitted to the throne praying for a uniform system of weights and measures. In April, 1908, the matter was again brought to the notice of the Central Government, and was referred to the Council of Reforms. The report of that council, published on September 3, 1908, recognized the difficulty of suddenly introducing a new system, and advised the adherence to the old Chinese standards, with the addition of certain European instruments. The supplanting of local standards by those of the Central Government was to be gradual. The new unit of length is the "tchi" (=32 centimeters); the new unit of capacity, the "to" (=10.355 liters); the new unit of weight, the "lian" (=37.301 grams).

HISTORY.

THE PROGRESS OF REFORM. The year 1908 was marked by a new step in the constitutional movement. An Imperial edict, an outline of which is given in a succeeding paragraph, contained more definite promises than ever before as to the constitution and set forth the conditions to be observed before its promulgation. In common with other countries the history of constitutionalism in China has been marked by alternative progress and reaction. The year 1907 had been in the main a year of retrogression. The announcement in November, 1906, that a constitution would be given when the nation was fitted for it, and outlining certain administrative reforms, caused a strong reaction, and for a time the conservative element was successful. The influence of Yuan-Shih-Kai, the viceroy of Chi-li, who was regarded as the leader of the Progressives, was undermined. In the latter part of that year, however, there were signs that the reform movement was recovering its ground. Viceroy Yuan was appointed to the Grand Council and to the Ministry of Foreign Affairs, and on December 25, 1907, an edict was issued to the effect that a constitution would be promulgated as soon as certain laws had been made and as soon as the people had shown the requisite capacity. Meanwhile in September commissioners had been appointed to study constitutional sys-

tems in Great Britain, Germany, Japan and other countries. This impulse toward the study of foreign constitutional movements had begun to manifest itself after the Boxer insurrection. Chinese students of European institutions took up their residence in several countries. The constitution of Germany seemed to attract them most strongly, and a mission sent for constitutional study to Europe three years ago seemed inclined to a form of government for China that united the German with the Japanese system; that is to say, retained for the Emperor certain unassailable prerogatives. The mission's report was referred to the commission for the preparation of the constitution, which is composed of the most important personages in the Empire. The ardent reformers objected to the delay imposed by the Emperor, and in answer to arguments that a constitution should not be granted until the people developed the necessary political capacity, pointed to the ignorance and incapacity of the Imperial Government itself, which had failed to turn to account the great resources of China, and had left her a prey to far weaker and smaller foreign nations. Among the extremists, the feeling was expressed that these delays were merely for the purpose of deceiving the people.

THE NEW SPIRIT IN CHINA. Much has been written during the last few years about the awakening of China. Among the many illustrations of this new spirit, a few may be briefly mentioned here. The constitutional movement arose mainly from the humiliation and anger of the people over the encroachments of foreign nations. The inability of the government to cope with the foreigner led to inquiries as to the cause. It came generally to be believed by students that the difference between China and these other nations in efficiency was the result of the difference in their institutions. Hence the desire to frame institutions on western models, that the strength of the Empire might so increase as to enable it to deal on more equal terms with competing nations. Chinese patriotism was greatly stimulated by the victory of Japan over Russia, which deprived the white race of a great part of its prestige. It pervades all classes of society and has led to a widespread inquiry as to the cause of the Empire's weakness. The students brought back from western countries many philosophic and political treatises, and these were translated and widely circulated. The Chinese press, although it is under censorship, has abounded in radical political discussions. The theories of Rousseau on liberty and equality have formed the text of many articles. The publication of such matter has naturally offended the conservative classes, the princes and the great dignitaries, but they seem to have realized that they are in the presence of a new force, and at times have given way to the reform impulse under pressure of necessity. Hence the alternating periods of reform and reaction. There is already a violent revolutionary element in the country, as was shown at the beginning of 1908, when a band equipped with explosives landed in China from Japan. This anarchist movement was suppressed by the police, but there were signs that it ramified even into the ranks of the Civil Service. The characteristic, however, of the new spirit in China is rather that of a strongly awakened national feeling; such for example as prompted many students to commit suicide as a protest against the action

of the authorities in the matter of railway concessions to foreigners, called out immense crowds who followed their funeral processions, and impelled the very lowest members of society to subscribe for shares in the national railways. It was well illustrated again early in 1908 on the occasion of the Tatsu Maru incident.

THE TATSU MARU AFFAIR. On February 5, the Chinese custom officers seized the Japanese steamer Tatsu Maru in Portuguese waters off Macao, where it had landed to discharge arms shipped from a Japanese port to a Chinese merchant at Macao. The Japanese bitterly resented the seizure and complained at once to the Chinese authorities, demanding an indemnity and an apology. They declared that the seizure was unwarrantable, the ship being in Portuguese waters, and the order having been sanctioned by the Macao authorities. The Chinese at first defended the seizure, saying that it had not occurred in Portuguese waters, but offered to submit the case for arbitration to the British admiralty. Later, however, Japan having sent an ultimatum (March 5), China tendered an apology and gave assurances that damages would be paid and the responsible persons punished. Japan on her side agreed to prevent the traffic in arms and ammunition between China and Japan. The vessel was released and the damages were paid. Friendly relations between the two governments were restored, but meanwhile the incident had greatly inflamed public opinion in China, and a boycott of Japanese goods had begun. A mass meeting was held at Canton, where 50,000 Chinese were said to have gathered. Violent language was used in regard to the weakness of the Chinese government and the insolent attitude of Japan. The excitement on this occasion was intense. Many of the people tore off the Japanese clothes that they were wearing and burnt them in a bonfire. Thousands of women dressed in mourning left their dwellings, held meetings, and made speeches. They adopted as an emblem a ring on which were engraved the words "National shame," to preserve the memory of this affront to their patriotism. It was estimated that the boycott which then began cost the Japanese some \$8,000,000. News of the affair spread throughout the greater part of the country through the vernacular press, and everywhere the national feeling was deeply stirred. During the year a great number of Japanese vessels left Chinese and other foreign ports without the goods for which they had come.

Serious difficulties on account of the boycott arose at Hong Kong (q. v.). The feeling against Japan as illustrated in this incident was intensified by the latter's course in Manchuria, where she retained the public buildings at Mukden and the Manchurian gold mines, occupied a portion of the province of Kirin, which she claimed as Korean territory, although it had long been held by China, and took possession of the Manchurian post offices and telegraph lines. She had also forbidden the building and operation by China of the railway to the west of the Liau River, from Hsenmintun to Fakumen, on the ground that it competed with the Japanese system.

These difficulties were settled in the course of the year. Japan agreed to the construction of the Fakumen road on condition that at no point should it come beyond a minimum distance from the Manchurian line. Agreements regarding the Manchurian telegraph lines were signed

at Tokio on Oct. 12 and Nov. 7. Japan agreed to hand over to China all Japanese telegraph lines in Manchuria outside her railway territory and to construct no telegraph or telephone lines in Manchuria outside her railway territory and to construct no telegraph or telephone lines or erect wireless stations outside her leased territory. China undertook to place special telegraph wires between the Treaty Ports, An-tung, Niu-chwang, Liao-yang, Mukden, Tieling, Kwang-cheng-tsze, and the railway territory at the exclusive disposal of the Japanese government for a period of fifteen years, the telegraph service on such wires to be worked by Japanese clerks in the employ of the Japanese government from the Chinese telegraph buildings, but only used for the exchange of telegrams from or to places under the direct control of the Japanese telegraph system. Japan also undertook to pay China a small annual royalty on all messages forwarded over the Japanese Manchurian telegraph lines.

DIFFICULTY WITH RUSSIA. Early in the year trouble arose at Kharbin on account of the assertion by the Russian authorities of absolute administrative rights and territorial jurisdiction over both Chinese and foreigners within the district of the Eastern Chinese Railway. On February 25, China complained to the Russian government of these alleged encroachments. The United States Consul, Mr. Fisher, sided with China in her demands, and the Russian Government complained on the ground that he had persistently held that he was accredited only to the Chinese government, and had supported the latter's claims for independent municipalities in the railway territory. The attitude of the consul was subsequently explained by Secretary Root, who declared that although the affair was complicated, too much importance had, in his opinion, been attached to it. Although the Chinese Eastern Railway was under Russian control and Russia was endeavoring to enforce her jurisdiction over the greater part of Kharbin, this did not impair Chinese sovereignty, and the United States would not commit themselves to the approval of the stringent Russian police regulations. The American representative was on the same footing as the Russian Consul General at Kharbin, and he held Chinese exequatur. The contention of the foreign element at Kharbin was that they should have a share in the municipal regulation of the foreign quarter, as in other Oriental cities. On the other hand, the Governor General and the railway authorities had issued decrees regulating municipal business and industry in the railway zone.

THE YUNNAN FRONTIER INCIDENT. On June 14 the French Government demanded reparation from China for a raid on a border village on French territory and an attack on the French patrol. For some time past there had been a state of revolt in the Chinese province of Yunnan adjoining the French Tongking possessions, resulting in conflicts and disturbances, and rebels had several times crossed into French territory, where they had been disarmed by the authorities. Finally a band of armed Chinese, alleged by the French to be regulars, pillaged a village not far from Nam-Kuan on the Kiang-si border and later attacked a body of French troops reconnoitering on French territory near Lao-Ké, killing a French officer and six native soldiers. The French thereupon demanded—The punishment of the offenders; the recall of the Viceroy,

Hsi-Liang, who, they said, had already shown an unfriendly attitude toward the French; the payment of an indemnity of 250,000 francs; the compensation for losses sustained by the French railway line in process of construction from Lao-Ké toward Yunnan; and the concession for a railway which should start from Taian-Fou. These demands were regarded by the Chinese as excessive and unreasonable. They were ready to render fair compensation, but contended that the culprits were not regulars but rebels, that the French had permitted the organization of rebellion on French territory, that Hsi-Liang was one of the best of the viceroys, and that while railway schemes were good in themselves they ought not to be demanded in this manner. To make a frontier incident a pretext for a railway concession in a distant province was criticized as being in the spirit of the brutal and dictatorial policy formerly followed by European governments in dealing with China, but now discountenanced. The Chinese government, however, promised to punish the offenders. An investigation was made, and early in November a decree was issued condemning three of them to death, and the others to imprisonment, exile or exclusion from office.

MEASURES AGAINST OPIUM. In accordance with the decree of November 21, 1906, restricting the growth and use of opium, stringent measures were carried out during that and the following year. The policy was continued in 1908. The British government coöperated in these attempts to reduce the opium evil, agreeing early in the year that it would decrease the importation for a trial period of three years. The Chinese government issued a decree which dwelt on the evils of opium taking, referred to the co-operation of the British authorities, and ordered the enforcement of the present regulations and the taking of further measures against the practice. By the regulations issued under the decree of November 6, it was required that within a period of ten years the cultivation of the poppy and the taking of opium should cease, proceeding at the gradual rate of one-tenth yearly. They also provided for the registry of opium users, of the amounts they consumed, of opium shops, of sales, etc.; and they ordered public officers, teachers, soldiers, and sailors to give up the habit. There were some disturbances in different parts of the Empire during the year, arising from these restrictions. The rules were not fully carried out, but nevertheless curtailed the cultivation of the poppy considerably, reduced the consumption, and led to the closing of the opium dens in many places. The prohibition was strictly enforced in the schools and colleges and among the soldiers and police. The decrease in the extent of opium-smoking among the respectable classes could plainly be seen. Yuan-Shih-Kai dismissed two viceroys on account of the slight diminution in poppy-growing under their administration. The Imperial government appointed a commission to inquire into the extent to which the people and the officials were still addicted to the opium habit. An agreement was reached with the British government whereby 51,000 chests were taken as the standard of exportation from India, and from this quantity there was to be a gradual diminution in the imports amounting to 5,100 each year, until after ten years the importation should wholly cease. It was further agreed that more duties should be levied by China on

foreign imported articles; and that there should be no trade in poppy juice between China and Hong Kong. Beginning January 1, 1909, the importation of morphine for other than medical purposes is prohibited. All the Powers have assented to this.

THE ANNOUNCEMENT OF THE CONSTITUTION. On August 27, the Emperor issued a decree promising a constitution. The instrument itself was said to be modeled largely on Japanese lines, and to comprise a representative parliament and a Bill of Rights prescribing freedom of speech and of the press and the right of assembly to all who kept within the law. It left in the hands of the sovereign the right of promulgating the laws, calling and dissolving parliament, receiving and appointing ambassadors, receiving money when parliament is not in session, and fixing the imperial household expenses. The Emperor also retained the command of the army and navy, the power of peace and war, and the appointment of judges. The edict making the announcement may be briefly summarized as follows: It declared that the members of the Senate and of the commission for the preparation of the constitution, together with the royal princes, have submitted a collective report and offered a body of rules concerning the choice of members of Parliament, and that in this report they treat of the measures which it is necessary to observe before a parliament is established. It goes on to say that the country is extremely weak and that a great number of changes must take place in public affairs. If the Court and the entire people do not share the same ideas, it will be impossible to maintain the stability of the state. If legislation does not conform to right and justice, the public peace cannot be assured, and if the magistrates and the people do not conform to justice in their relations, it will be impossible to make rapid progress and attain satisfactory results. "In the project put forth by the aforesaid dignitaries, everything that concerns the constitutional laws and the choice of members of Parliament has been examined in a very thorough manner, article by article, and the separation of powers is therein set forth; moreover the princes have chosen the best features of foreign constitutions and demand that the people conform thereto, without however discarding the Chinese religion." The supreme power must remain with the court while the right of the people consists in deliberating on all public affairs. When the provisions of the constitution and the rules for the choice of members of Parliament are drawn up, the separation of powers as between sovereign and people will be considered, and if this principle is steadily observed encroachment will be impossible. So long, however, as constitutional provisions are not promulgated and Parliament is not assembled, existing legislation must be faithfully obeyed, and the people must await the measures of the court for the establishment of the new system. The decree orders the Senate and the commission for the preparation of a constitution to require the distribution of printed announcements on yellow paper with the imperial seal in all the administrations of the capital as well as to the viceroys, governors, the prefect of Peking, and the highest officers of the provinces, who shall post them in the principal rooms of their palaces. The magistrates

of the capital and the provinces shall conform to all the rules set forth in these documents, and every six months shall make a detailed report to the Emperor of all the measures that they have taken relating to these subjects, and shall also inform the commission for the preparation of the constitution, who shall collate this material. "The ministries and the provincial administrations must treat these matters in the same spirit, and the ministers must themselves examine the acts of the authorities and render us a report; we also command the princes who are members of the aforesaid bodies to lay before us a plan for the establishment of a special bureau charged with the supervision of the administration of functionaries. At Peking the imperial censors must devote all their attention to the same object." Then follow warnings against any failure to observe these rules, and an urgent command to the chief officers of the administration to do everything possible to remove abuses. As to the institution of Parliament, the date was fixed nine years hence, within which period all the preliminary measures must be carried out. When the date arrives the imperial rescript will promulgate and convoke Parliament. In conclusion the decree reads: "Let all our subjects, magistrates, and commanders exercise all their efforts to contribute to the good administration of the country. If it happens that people of suspicious reputation gather to discuss bad principles, seek to stir up strife or agitate for the purpose of disturbing the public order and bringing about evil conditions, the Court will apply to them in all their rigor the legal penalties, and will not endure any disturbance of the public peace."

Some steps had already been taken to prepare the way for constitutional government: thus the Imperial government had provided for general councils of the provinces and had decided not to oppose the local assemblies which had sprung up in some places. In these councils the principle of popular rights is not recognized either in practice or in theory. The members of these bodies are chosen by the mandarins (who represent the princes), either as a result of their personal investigations or by ratifying the representatives chosen by the notables who are the electors in the first instance. On July 22, 1908, the emperor addressed the people on the subject of these councils. He said that the councils were deliberative bodies for the discussion of affairs of public interest and formed the first stage for admission to the Senate. They were to serve as a basis for the future Parliament. He declared that it was desirable that in every province these deliberative councils should be employed to exercise the political capacities of the people, and he urged his subjects of all classes loyally to take part in these labors, to indicate the measures of progress that they think essential, and the abuses that they think should be suppressed in their provinces. He enjoined the viceroys and governors on their part to consider all these proposals for improvement. This decree greatly encouraged the reformers and led some of the governors to recommend even the establishment of municipal councils like that of Tientsin, where for the past year a council of 35 members, chosen from an electoral body of 70,000 nobles, has been in action. The demand for a definite announcement as to the date for

the promulgation of the constitution grew stronger, and in response to this came the decree of August 27, above quoted. The date fixed in this decree was not satisfactory to the ardent reformers, who asked why it was necessary to put off for nine years the establishment of a system which would add so greatly to the strength of China. In many quarters the demand was made for an immediate establishment of a national Parliament, and it was reported that the Government was considering a shorter term of preparation than that imposed by the decree.

THE DEATH OF THE EMPEROR AND THE DOWAGER EMPRESS. Kwang-Hsu, Emperor of China, died on August 14, and his death was followed on the next day by that of the Empress Dowager, Tze-Hsi. Kwang-Hsu, though nominally enjoying the full imperial power since he came of age in 1890, was actually greatly restricted in his rule by the Dowager Empress, who had acted as regent during his minority, and even afterwards retained a large measure of control. Her influence is generally admitted to have been exercised against all measures of reform, and she is said to have thwarted the progressive tendencies of the young emperor at every turn. The reform movement, it will be remembered, gained a temporary and premature victory in 1898 when the Emperor, summoning the reform leaders, asked their advice as to what progressive measures should be adopted, and shortly afterwards issued a series of edicts which if carried out would have revolutionized the administration and set the country on the path of constitutional changes such as had taken place in Japan. The *coup d'état* which followed was attributed to the Dowager Empress, who, taking advantage of the fact that the army had not been gained over by the reformers, caused the palace to be occupied by troops and the reformers to be summarily punished. The Emperor was henceforth completely under her control. Then occurred the Boxer uprising, followed by the ignominious flight of the Court, which humiliated the people and tended to arouse a patriotic determination to build up a country strong enough to withstand the foreigner. After this the Court was unable to resist the growing strength of the reform movement, and the measures above mentioned were taken with the reluctant consent of the Dowager Empress, who from all accounts was at heart a reactionary, though acquiescing in the various progressive liberal decrees from fear of endangering her power by resistance. The decree announcing the death of the Emperor and the Empress Dowager proclaimed the customary period of public mourning, 100 days. It was followed by a decree proclaiming as Emperor Prince Pu-Yi, then in the third year of his age (born February 8, 1906), who assumed the throne name of Hsuan-Tung. His father, Prince Chun, the brother of the late emperor, was proclaimed regent. He was reported to be an enlightened man and in sympathy with the reformer Yuan-Shih-Kai. The peaceful accession of the new Emperor and the announcement of Prince Chun's regency were taken as favorable to the interests of the reform movement. On December 3 an imperial edict reiterated the intentions of the government to redeem its promises of constitutional government as formulated in the edict of August 27.

THE DOWNFALL OF YUAN-SHIH-KAI. The sudden and unexpected announcement at the close of the year that Yuan-Shih-Kai was dismissed from office caused great uneasiness, not only among the reform element but among the foreigners in China, who had regarded the retention of Yuan-Shih-Kai as evidence that the government would continue to be friendly toward foreign powers. The edict proclaiming his dismissal gave no further reason than that "he had rheumatism of the leg"; and after ordering him to vacate his office and return to his home added "Thus our clemency is manifest." Various accounts appeared in the press concerning the career and character of the dismissed minister. By the foreign element he was regarded as a friend of reform and the advocate of an enlightened policy in dealing with foreign nations. By his enemies among the reformers, on the other hand, he was considered merely an opportunist who had made concessions to the cause of progress to serve his own ends, but had really supported the Empress Dowager in undermining the efforts of the reformers. One of his main titles to distinction is his efficient work in reorganizing the military. In 1898 when Viceroy of the province of Shantung, he introduced discipline among the soldiers, who became almost the only effective military force in the Empire. In 1900 he saw that the Chinese anti-foreign policy was doomed to failure; and his course at that time was interpreted by foreigners as indicating a desire to go as far as he could on their behalf, but was criticised by his enemies as wavering and self-seeking. Through him came the information that led the European Powers to ally themselves with the United States in the march on Peking; and he was the first to announce that the imprisoned legations in Peking were still holding out against the Boxers. He is also credited with the new educational policy whereby modern text books have replaced the classics, with the abolition of torture, and with the great sanitary improvements in Peking. Hence he earned the trust of foreigners, who regarded his downfall with grave concern. A meeting was held by the representatives of the Powers at Peking immediately on hearing the news, to discuss means of conveying to the Government their appreciation of the methods which Yuan-Shih-Kai had employed in his dealings with the foreign ministers, and their hope that his dismissal might not mean the reversal of that policy. The real cause of the dismissal and its bearing on the prospects of the reformers were not known at the close of the year.

THE VISIT OF THE DALAI LAMA. On September 28, the Dalai Lama of Tibet paid a visit to Peking. It was the occasion of a very picturesque procession of Tibetans through the city, and many interesting ceremonies. He had left Lhasa after the arrival of the Younghusband Expedition, and for four years had been traveling over China and Manchuria, somewhat to the embarrassment of the Chinese authorities on account of the expenses entailed upon the government for his various receptions. The death of the Emperor and of the Empress Dowager obliged him to remain longer than was expected, and before he left the respect in which he was held by the Chinese was thought to have suffered from the closer view which it afforded into the Tibetan religious practices. The title of "Sincere and Loyal Spreader of Civilization"

was conferred upon him by the Pekin Government, but he was deprived of his temporal power and was thenceforth to be recognized only as an ecclesiastical authority, the Chinese government having officially proclaimed its sovereignty in Tibet. He left the city on December 21. His train comprised 400 persons and a long procession of horses and camels bearing tents.

OTHER EVENTS. On July 20 an edict was issued appointing a special envoy to the United States to express the gratitude of China for the action of this country in restoring to the Imperial government the balance of the Boxer indemnity, which amounted to nearly \$12,000,000. It was announced that China would apply the greater part of this amount of money to the education of selected Chinese students in American schools and universities. In June a college was established in Pekin for the training of Chinese for the Maritime Customs Service. In the same month French advisers were appointed in the Ministries of War and Communications. On April 1, 1908, the Shanghai and Nanking Railway, begun April 25, 1905, was opened to the public. It was financed by British capital and constructed by British engineers. It completes the connection between those two cities, and its total length is 194 miles. In October a division of the American fleet, on its way around the world, called at Amoy.

CHRISTIAN CONNECTION. See **CHRISTIANS.**

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF. A religious society for young people, founded by Rev. Francis E. Clark, at Portland, Me., in 1881. In October, 1908, the organization included 70,608 societies throughout the world, a net gain of 1470 societies over 1908. The total membership is nearly 3,500,000. Work in foreign countries in 1908 was carried on with great vigor. Summer schools were conducted in various sections of the country. A movement started in 1905 to erect a building in Boston for international headquarters has resulted in the raising of over \$75,000 for that purpose. The twenty-fourth international convention of the Society will be held at St. Paul, Minn., July 7-12, 1909, and the World's Convention at Agra, India, November 20-25, 1909. The officers in 1908 were: Francis E. Clark, President; William Shaw, General Secretary; Amos R. Wells, Editorial Secretary; Himan N. Lathrop, Treasurer. The official organ is *The Christian Endeavor World*, published in Boston.

CHRISTIAN SCIENTISTS. The name used to designate members of a religious denomination which was founded by Mrs. Mary Baker Eddy. The doctrines of Christian Scientists are founded upon an interpretation of the Scriptures contained in *Science and Health with a Key to the Scriptures* by Mrs. Eddy, published in 1875. The Church of Christ, Scientist was founded in 1879. The First Church of Christ, Scientist, Boston, Mass., of which Mrs. Eddy is honorary pastor, is the Mother Church of the denomination, all others being branch churches. In December, 1908, there were 1100 churches or societies listed in the *Christian Science Journal*. There are many institutes for teaching Christian Science and upward of 4000 practitioners of Christian Science mind healing. Organizations exist in almost every State in the United States and there are branches in Canada, Nova Scotia, British Columbia, Mexico, the Bahamas,

British West Indies, the Hawaiian Islands, Cuba, Philippine Islands, Great Britain, France, Germany, Norway, Switzerland, Italy, Australia, China, South Africa, and other countries. In 1908 the church numbered 85,096 communicants, 668 churches, and 1336 ministers. The publications of the church are in the hands of the Christian Science Publishing Society which issues the *Christian Science Journal*, the official organ of the church, the *Christian Science Sentinel*, and other periodicals. On November 25, 1908, the Publishing Society began the publication of a daily newspaper, the *Christian Science Monitor*.

CHRISTIAN SOCIALISTS. See **AUSTRIA-HUNGARY.**

CHRISTIANS. A religious denomination in the United States and Canada, which originated in the early part of the nineteenth century. It claims the name Christians "not as a sect name, but fraternally as a name of union." The church allows latitude of theological views and asserts the importance of the fellowship of all followers of Christ. Two bodies, called the Christian Church and the Christian Church South, which were separated in 1854 through failure to agree on the slavery question are now closely affiliated. The denomination, according to the latest available statistics, has 101,597 members, 1340 churches, and 1348 ministers. Missionary and educational interests of the church were carried on by aggressive and energetic measures during 1908. During the year \$15,507 were spent for its missions. In the various schools of the denomination are enrolled about 1,000 students with about 75 instructors. The annual expenditures are about \$75,000. There are 277 Christian Endeavor societies in the church, with a membership of about 7000. The official organ of the denomination is the *Herald of Gospel Liberty*, published at Dayton, Ohio. The meetings of the American Christian Convention, which are quadrennial, will be held in 1910. This representative body has charge of the general, educational, missionary and other interests of the church.

CHRISTMAS ISLAND. A small island in the Indian Ocean, belonging to Great Britain and administratively attached to the Straits Settlements. There are about 1200 inhabitants, mostly Malays. The importance of the island is due to its enormous deposits of phosphates, and nearly all the inhabitants are working for the phosphate company. The shipments of phosphates in 1907 were 110,375 tons, of which Japan took 54,500, Europe 52,600, and Australia over 3000.

CHURCH OF CHRIST, SCIENTIST. See **CHRISTIAN SCIENTISTS.**

CHURCHES OF GOD. A religious denomination whose doctrines agree generally with those held by the Baptists. It was founded in 1830 as a result of the preaching of John Winebrenner, a German Reformed pastor at Harrisburg, Pa. In 1908 the churches numbered 41,475 communicants, 390 churches, and 499 ministers. The churches are divided into 17 annual elderships, delegates from which constitute the general eldership of the Churches of God, which meets every four years. The denomination is strongest in Pennsylvania, West Virginia, and the States of the Central West. A college is maintained at Findlay, O., and a collegiate institute at Fort Scott, Kan.

It has a General Woman's Missionary Society, which has five missionaries in India, with a number of native workers. There is a large publishing house and book store at Harrisburg, Pa. Its organs are: *The Church Advocate*, the *Workman Quarterly*, the *Sunday School Gem*, *The Sunbeam*, and the *Primary Quarterly*.

CIGARS AND CIGARETTES. See TOBACCO.

CIVIC FEDERATION, NATIONAL. See NATIONAL CIVIC FEDERATION.

CIVIL SERVICE. See UNITED STATES.

CLARK, JAMES BEAUCHAMP (CHAMP). An American legislator, representative to Congress (Democrat) from the Ninth Missouri District. He was born near Lawrenceburg, Ky., on March 7, 1850, attended Kentucky University, and graduated at Bethany College, Pa., in 1873. He was president of Marshall College, W. Va., from 1873 to 1874 and then took up the study of law at the Cincinnati Law School. In 1875 he moved to Missouri and subsequently became city attorney of Louisiana and Bowling Green and prosecuting attorney of Pike County. He was presidential elector and a member of the State Legislature in 1880. In 1892 he was elected representative to Congress and has since served continuously in that body, with the exception of the period 1895-97. In Congress Mr. Clark has attained considerable prominence as an orator and debater, and at the beginning of the second session of the Sixtieth Congress he was chosen leader of the Democratic minority, succeeding John Sharp Williams. Mr. Clark is also widely known as a Chautauqua lecturer.

CLARKE, BENJAMIN FRANKLIN. An American educator, died on December 29, 1908. He was born in 1831. In 1863 he graduated at Brown University, was appointed to the faculty of that institution, and remained a member of the teaching staff for the rest of his life. Twice during his career he served as acting president of the university. At the time of his death he was emeritus professor of mechanical engineering.

CLARK UNIVERSITY. An institution of higher learning at Worcester, Mass., founded in 1889. The chief aim of the University is toward encouraging original research, although it includes an undergraduate college department. The attendance in 1908 was 82 in the University and 150 in the College. The University includes nine departments. It publishes the *American Journal of Psychology*, the *Pedagogical Seminary*, and the *American Journal of Religious Psychology and Education*. The endowment of the University and College is \$4,000,000. The President of the University is G. Stanley Hall; the President of the College in 1908 was Carroll D. Wright.

CLEARING HOUSE.

BANK CLEARINGS. Bank clearings in the calendar year 1908 in 101 cities of the United States, as reported by *Bradstreet's*, aggregated \$131,285,367,000, as compared with \$143,991,528,000 for 1907, \$159,135,000,000 for 1906, and \$143,114,000,000 for 1905. Thus the fall was only 8.8 per cent. from the total of 1907. If, however, comparison is made for years ending September 30, then the 1908 total is 18 per cent. less than that of 1907. The clearings were considerably less during the first half of the year than during the second

half. They were also less during the first eight months than in corresponding months in 1907, 1906, or 1905. In September, however, the clearings exceeded those of 1907; they were somewhat less in October than in October, 1907; but in November and December were very much larger than the same months last year. The totals in millions by months in 1908 were as follows: January, \$11,260; February, \$8,662; March, \$9,693; April, \$9,682; May, \$10,781; June, \$9,754; July, \$10,994; August, \$10,165; September, \$10,025; October, \$12,012; November, \$12,875; December, \$14,287. This December figure exceeded that of December, 1907, by 53 per cent., and exceeded that of any month since March, 1907, and was exceeded only by four other months in American history, all of these four being in recent years. Other favorable comparisons, as well as a clear impression of the remarkable business expansion of the United States, may be made by contrasting the clearings of 1908, a year succeeding a severe financial panic, with those of years preceding 1905. They exceeded those of any year before 1905, were 91 per cent. larger than those of 1898, and 189 per cent. larger than those of 1894, the year following the previous severe crisis. Moreover, 26 cities showed gains in 1908 over 1907, and 53 showed gains over 1906. All but one of the 26 and all but 3 of the 53 of these cities were west of the Alleghenies, thus reflecting the favorable condition of agriculture and the very considerable independence of the middle west from the financial condition of the east.

Of the total clearings, \$79,275,880,000 were credited to New York City, or 9 per cent. less than in 1907, 24 per cent. less than in 1906, and 15 per cent. less than in 1905; but exceeding the clearings of any year preceding 1905. The clearings in other large cities in 1908 were: Boston, \$7,338,000,000; Philadelphia, \$5,987,000,000; Pittsburgh, \$2,064,000,000; Cincinnati, \$1,230,000,000; Chicago, \$10,853,814,000; Minneapolis, \$1,057,000,000; St. Louis, \$3,074,800,000; Kansas City, \$1,848,511,000; Baltimore, \$1,240,900,000; and San Francisco, \$1,757,151,000.

The Canadian clearings aggregated \$4,142,000,000 for the calendar year, a loss of 3.9 per cent. compared with 1907. The aggregate clearings in the principal cities were: Montreal, \$1,467,000,000; Toronto, \$1,166,900,000; and Winnipeg, \$614,000,000.

CLEARING-HOUSE CERTIFICATES. Following the outbreak of the financial panic in October, 1907, clearing-house certificates were issued in 50 different cities of the United States. The first issues were made by the New York Clearing House and with three exceptions there were no issues after January 1, 1908. In the larger cities these certificates were used for the sole purpose of facilitating the settlement of balances between member banks. In some centres, however, they were pledged for notes or checks of small denominations intended for general circulation in the place of the customary forms of currency. A summary compiled by the manager of the New York Clearing House, from reports from 106 cities, showed the aggregate of certificates issued to be \$248,279,000. The amounts issued at principal points were as follows: New York, \$101,060,000; Chicago, \$39,240,000; St. Louis, \$15,965,000; Philadelphia, \$13,695,000; Boston, \$12,595,000; San Francisco, \$12,339,000; Pittsburgh, \$7,445,000; New Or-

leans, \$5,266,000: a total of \$207,605,000 for these eight cities. The maximum amount of certificates outstanding at any one time was \$219,857,500, this maximum at New York being \$88,420,000. Of the 52 banks of the New York association 20 did not resort to the use of certificates at all; the largest amount issued to any one bank was \$17,000,000; the interest paid on New York certificates at 6 per cent. aggregated \$1,116,246; and during the period when certificates were in use the New York clearing-house committee received as collateral against certificates a total of \$453,000,000, of which \$330,000,000 was in the form of commercial paper and \$125,000,000 in stocks, bonds, and short-time notes of railroads and other corporations. The last issue of certificates in any city was at New York on January 30. In the majority of cities the final cancellation of certificates occurred some time in January, though the final cancellation at New York took place on March 28, and the very latest was that at Los Angeles on April 28.

CLEVELAND, GROVER. Twenty-second and twenty-fourth President of the United States, died in Princeton, N. J., on June 24, 1908. He was born on Mar. 18, 1837, at Caldwell, N. J., where his father, Richard Falley Cleveland, was pastor of the Presbyterian church. He was christened Stephen Grover, but the name Stephen was dropped early in life. The family removed to Fayetteville, N. Y., in 1841, and in 1850 to Clinton, and Grover was educated in the Fayetteville schools and at Clinton Academy, where he was preparing for college when his father's death in 1853 necessitated his going to work to assist in the support of his mother and sisters. For a year he taught in the Institution for the Blind in New York and then, deciding that a wider career was open in the West, he borrowed \$25 and started for Cleveland, O. An uncle persuaded him to settle in Buffalo, and he was admitted to practise law there in 1859.

He became interested in politics as a Democrat, and in 1863 became assistant district attorney of Erie county and in 1870 was elected sheriff, in which office he served for three years. Meanwhile he had become known as a successful lawyer and the firm of Cleveland and Bissell, formed by him and Wilson S. Bissell, afterward his postmaster-general, held a high position at the Buffalo bar. The corruption and extravagance which marked the political life of the period was awakening throughout the nation a movement for reform and economy in the conduct of public affairs, which was destined to find its leader in Cleveland. The corrupt rule of the Republican ring in Buffalo, caused a strong independent movement to be started there in 1881. Cleveland was persuaded to accept the Democratic nomination for mayor and was elected. He made a record for efficiency and strength of character in this office which attracted the attention of thoughtful people throughout the country and caused the Democratic leaders in the State to see in him a strong candidate for higher honors. He was nominated for governor in 1882, and was elected by a plurality of 192,854 over Charles J. Folger. His unprecedented victory was largely due to a factional division in the Republican organization and the belief that Folger's nomination had been obtained by fraud.

His career as governor was marked by the same independence and fidelity to his convic-

tions which he had shown as mayor of Buffalo. He kept a watchful eye on expenditures and made such a liberal use of the veto power that he became known as the "veto governor." His disregard of public clamor was well exemplified when he vetoed the bill providing for a five-cent fare on the New York elevated railroads. Meanwhile his reputation as a reformer had attracted the attention of party leaders all over the country and his availability as a presidential candidate was widely discussed. In the Democratic National Convention at Chicago in 1884 he received the nomination on the first formal ballot. His Republican opponent, James G. Blaine, had alienated the support of many Republicans interested in reform and a vigorous revolt, the "Mugwump" movement, in Cleveland's favor resulted. The campaign was one of bitter personalities and the contest so close that a plurality for Cleveland of less than 1,500 in New York decided the result. The electoral vote stood 219 to 182. His independent supporters were strong friends of civil service reform and one of his first difficulties after taking office, Mar. 4, 1885, was in reconciling the principles of reform in the civil service with the claims of his party supporters. His use of the appointing power satisfied neither but, on the whole, marked a great advance towards a non-partisan civil service.

Among the important features of his first administration were his unprecedented use of the veto power (he vetoed 297 pension bills alone), and his commitment of his party to the policy of tariff reform. He took the matter up in his first message to Congress and his annual message in 1887 was entirely devoted to that subject. The latter, coming just before the presidential election, aroused intense interest. It had the effect of uniting the party in opposition to the protective system, and furnished the principal issue of the ensuing campaign in which Cleveland was defeated by Benjamin Harrison by an electoral vote of 233 to 168. In the session following the election, the Democrats succeeded in getting a tariff reform bill (the "Mills" bill) through the House of Representatives, but it was killed in the Senate, where there was a Republican majority. After the expiration of his term Mr. Cleveland resumed the practice of law, this time in New York City. He married at the White House on June 2, 1886, Miss Frances Folsom.

The passage by a Republican Congress in 1890 of the McKinley Tariff Bill and the overwhelming Democratic victory in the Congressional elections of that year upon that issue, made Cleveland the logical Democratic candidate in 1892. He was nominated on the first ballot, by a small vote over the necessary two-thirds, in spite of the opposition of many influential men in the party, and was triumphantly elected, receiving an electoral vote of 277 to 145 for Harrison and 22 for James B. Weaver, and took office on Mar. 4, 1893. For the first time in thirty-six years, Democrats found themselves in control of the Presidency and both houses of Congress. This was largely the result of Cleveland's leadership, but the situation had many elements of danger both for Cleveland and for the party. Although he had received a plurality of 380,810 in the popular vote, over 1,000,000 votes had been cast by the People's Party, which was pledged to the free coinage of silver and other radical measures. A large sec-



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GROVER CLEVELAND

**A PHOTOGRAPH TAKEN IN 1907 AT HIS HOME IN PRINCETON WHEN MR. CLEVELAND
WAS SEVENTY YEARS OF AGE**

tion of the Democratic party, including many Senators and Representatives, also favored free silver, while Cleveland himself had courageously spoken against the movement in a letter made public in 1891. To add to his difficulties, a severe financial panic took place early in 1893, which was charged by the Republicans to the fear of further anti-tariff legislation and by many of both parties to the failure to provide for the unlimited coinage of silver.

Cleveland met the situation courageously. He recommended to a special session of Congress the repeal of the Sherman Law of 1890, and, after a bitter struggle, the repealing of the act was passed, a large part of the favorable vote in each house being Republican. The regular session of Congress beginning in Dec., 1893, took up the revision of the tariff. The "Wilson" bill was framed and met with Cleveland's approval as it passed the House, but was so mutilated in the Senate as to satisfy no one and the President allowed it to become a law without his signature. The natural result of this lack of harmony in the party and of the hard times was an overwhelming Republican victory in the congressional elections of 1894. Cleveland served out the rest of his term with little support in Congress or from the people, but he remained steadfastly faithful to his ideals, and paid no attention to criticism when convinced he was right.

President Cleveland's foreign policy was both strong and conservative. He withdrew from the Senate the treaty for Hawaiian annexation negotiated by the Harrison administration, and opposed attempts to involve the United States in the Cuban rebellion. On the other hand, when Great Britain refused to arbitrate her boundary quarrel with Venezuela, he sent a message to Congress (Dec., 1895) advocating the appointment of an American commission to fix the boundary and declaring that the Monroe Doctrine bound the United States to limit Great Britain to the true lines as found. Congress and the people upheld the President and, although war seemed for a while possible, Great Britain eventually agreed to arbitrate. Other important events of this administration were the dispatch of the Federal troops to Chicago during the railroad strike of 1894 to maintain order and protect the mails, and the private sale of \$62,000,000 in bonds in 1895 to maintain the gold reserve.

The Democratic division over free silver culminated in 1896 in a sweeping victory for its supporters in the national convention, and Cleveland refused to support Bryan in the campaign which followed. After the expiration of his term he retired to Princeton, N. J., where he lived the remainder of his life, his great services to his country being more and more appreciated by the people as they came to a juster estimate of his character and the difficulties of his position. Shortly after he became a resident of Princeton, Mr. Cleveland was chosen a trustee of Princeton University. He took an intense interest in the affairs of the university, and especially in the work of the graduate school. The Stafford Little Lectureship on Public Affairs was established for him, and he delivered a notable series of lectures, which formed, to a certain extent, a defense of his policies while he was President, including his Venezuelan policy. These were published in 1904 under the title, *Presidential Problems*. He

also wrote a volume of essays on fishing and other outdoor sports.

In 1905 Mr. Cleveland became one of the trustees in control of the majority stock of the Equitable Life Assurance Society, but aside from this his interest was centered in his home and family, and in his favorite recreations of hunting and fishing. During the campaign of 1908 a letter signed with his name and attacking the candidacy of Mr. Bryan was extensively circulated until discovered to be a forgery.

CLOUS, JOHN WALTER. An American soldier, died in New York, on Sept. 1, 1908. He was born in Germany, on June 9, 1837, and was educated for the law, but emigrated to the United States in 1855 and in 1857 enlisted in the army. He was commissioned second lieutenant Dec. 2, 1862, for conduct under fire, and at the close of the Civil War was a first lieutenant in the Sixth Infantry, having been twice brevetted for gallantry at Gettysburg. He continued his legal studies while in the army, was admitted to the bar, and became a recognized authority on military law. In 1886 he was made major and judge-advocate and continued in that department of the army until his retirement in 1901, as judge-advocate-general. During the Spanish War, he was made brigadier-general of the volunteers. He served on the staff of General Miles during the Porto Rico campaign, and was a member of the Cuban evacuation commission.

COAL. In 1907 the production of coal in the United States reached the unprecedented total of 480,363,424 short tons, of which 394,759,112 short tons were bituminous coal and lignite and 85,604,312 short tons were Pennsylvania anthracite. In 1908, as a result of the panic of the previous year and the financial and business depression, there was a greatly decreased production amounting to 15 to 20 per cent. In the more important fields of Michigan, New Mexico, Oklahoma, Washington, and Utah, the output of 1908 was almost equalled or in a few cases exceeded, but in Pennsylvania and West Virginia the falling off was very marked. Illinois after Pennsylvania ranks as the largest producer in the United States, and is followed by West Virginia, and Ohio in the order named. Estimates made by the United States Geological Survey indicated that the bituminous coal production in 1908 was between 320,000,000 and 330,000,000 tons, or practically 70,000,000 tons less than in 1907.

The railroad shipments of anthracite in 1908 amounted to 64,237,076 long tons, or 71,945,525 short tons, as compared with 67,109,393 long tons, or 75,162,510 short tons, in 1907, indicating a decrease in the shipments of this product, which, except for the smallest sizes is now used almost exclusively for domestic purposes, and in the Eastern and Middle States, of 2,872,317 long tons, or 3,217,005 short tons. This would indicate a decrease in the total production of anthracite of 3,580,000 short tons. In somewhat more detail are the statistics from the annual review of *The Engineering and Mining Journal* (New York, Jan. 9, 1909) which gives the production by States, based on the best available returns and estimates. With these figures are included those for 1907, compiled by the same authority, which, however, shows a slight discrepancy from the estimates and more extended table of the U. S. Geological Survey.

QUANTITY AND VALUE OF COAL PRODUCED IN THE UNITED STATES, 1903-1907 (SHORT TONS.)
From Mineral Resources of the United States, 1907. U. S. Geological Survey.

State or Territory.	1903.		1904.		1905.		1906.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Alabama	11,654,324	\$ 14,246,798	11,262,046	\$ 13,480,111	11,868,069	\$ 14,387,721	13,107,963	\$ 17,514,786	14,250,454	\$ 18,405,463
Arkansas	2,229,172	3,360,831	2,009,451	3,102,660	1,934,673	2,880,738	1,864,268	3,000,339	2,670,438	4,473,693
California and Alaska	106,420	301,318	79,682	377,306	80,882	385,976	30,831	78,684	24,089	91,813
Colorado	7,423,602	9,150,943	6,653,355	8,761,821	8,826,429	10,810,978	10,111,218	12,735,616	10,790,236	15,079,449
Georgia and North Carolina	434,260	546,759	390,191	476,096	353,548	456,184	332,107	424,004	362,401	499,686
Idaho	4,250	13,250	3,480	13,730	5,882	17,846	6,165	12,238	7,588	31,119
Illinois	36,967,104	43,196,809	36,476,060	39,941,993	38,434,363	40,577,592	41,480,104	44,763,062	51,317,146	54,687,382
Indiana	10,794,692	13,244,817	10,842,189	12,004,300	11,896,252	12,492,255	12,092,560	13,116,261	13,986,713	16,114,300
Indian Territory	3,517,388	6,386,463	3,046,539	5,532,066	2,924,427	5,145,358	.....	.....	.....	.....
Iowa	6,419,811	10,563,910	6,519,933	10,504,406	6,798,609	10,586,381	7,266,224	11,619,455	7,574,322	12,258,012
Kansas	5,839,976	8,871,963	6,333,307	9,640,771	6,433,979	9,350,542	6,024,775	8,979,553	7,322,449	11,159,698
Kentucky	7,539,032	7,979,342	7,576,482	7,868,192	8,432,523	8,385,232	9,653,647	9,809,938	10,753,124	11,405,038
Maryland	4,846,165	7,189,784	4,313,622	6,729,085	6,108,639	8,831,760	6,435,453	6,474,793	5,532,628	6,623,697
Michigan	1,367,619	2,707,527	1,342,340	2,424,935	1,473,211	2,512,697	1,346,338	2,427,404	2,035,858	3,660,833
Missouri	4,238,586	6,834,297	4,168,308	6,801,751	3,983,378	6,291,661	3,758,008	6,118,733	3,997,936	6,540,709
Montana	1,488,810	2,440,846	1,358,919	2,194,548	1,643,832	2,823,350	1,829,921	3,240,357	2,016,857	3,907,082
New Mexico	1,541,781	2,105,785	1,452,325	1,904,499	1,649,933	2,190,231	1,964,713	2,638,986	2,628,959	3,832,128
North Dakota	278,646	418,006	271,928	389,062	317,642	434,778	306,689	451,382	347,760	660,199
Ohio	24,838,103	31,932,327	24,400,220	26,579,738	25,562,950	26,486,740	27,731,540	30,346,580	32,142,419	35,324,746
Oklahoma (Indian Territory) .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon	91,144	221,031	111,540	243,588	109,641	282,495	79,731	212,338	70,981	7,433,914
Pennsylvania:										
Anthracite	74,607,068	162,036,448	73,156,709	138,974,020	77,659,850	141,879,000	71,282,411	131,917,694	85,604,312	163,584,056
Bituminous	103,117,178	121,752,759	97,938,287	94,428,219	118,413,637	113,390,570	129,293,206	150,143,177	156,664,028	156,664,028
Tennessee	4,798,004	5,979,830	4,798,004	5,642,393	5,768,690	6,577,881	6,259,275	7,667,415	8,490,334	8,490,334
Texas	926,759	1,505,383	1,195,944	1,983,636	1,200,684	1,968,558	1,312,873	2,178,901	1,648,069	2,778,811
Utah	1,681,409	2,026,038	1,493,027	1,943,440	1,323,372	1,793,510	1,772,551	2,408,381	1,947,607	2,969,769
Virginia	3,451,307	3,302,149	3,410,914	2,921,911	4,276,271	3,777,325	4,264,579	4,133,991	4,710,895	4,807,533
Washington	3,193,273	5,380,679	3,137,881	5,120,931	2,864,926	5,141,258	8,276,184	5,908,434	3,680,532	7,679,801
West Virginia	29,337,241	34,297,019	32,406,752	28,647,014	37,791,580	32,341,790	43,290,350	41,061,939	48,091,583	47,846,630
Wyoming	4,635,293	5,731,281	5,178,556	6,747,909	5,602,021	7,336,051	6,133,994	8,013,528	6,252,990	9,732,668
Total	357,356,416	\$ 503,724,381	351,816,398	\$ 444,371,021	392,722,635	476,537,294	414,157,278	\$ 513,079,809	480,363,424	\$ 614,798,898

^a Georgia, only.

^b Includes production of Nevada.

^c Includes production of Nebraska and Nevada.

PRODUCTION OF COAL IN THE UNITED STATES.

(Engineering and Mining Journal.)

States.	1907. Short tons.	1908. Short tons
Bituminous:		
Alabama	14,417,863	11,950,000
Arkansas	1,930,400	1,750,000
California and		
Alaska	45,300	55,000
Colorado	10,920,527	9,773,000
Georgia and North		
Carolina	365,300	275,000
Illinois	(c) 51,317,146	48,000,000
Indiana	11,692,072	12,000,000
Iowa	(a) 7,568,424	7,050,000
Kansas	6,137,040	5,600,000
Kentucky	10,207,060	9,526,000
Maryland	5,529,663	5,000,000
Michigan	(b) 1,898,446	2,000,000
Missouri	4,350,000	3,900,000
Montana	1,810,000	1,800,000
New Mexico	(a) 2,302,062	2,725,000
North Dakota	268,300	250,000
Ohio	32,465,949	30,000,000
Oklahoma	3,450,000	3,250,000
Oregon	51,600	25,000
Pennsylvania	149,759,089	118,309,000
Tennessee	6,760,017	5,009,000
Texas	1,800,000	1,250,000
Utah	1,967,621	2,000,000
Virginia	4,570,341	4,000,000
Washington	3,713,824	3,000,000
West Virginia	47,205,965	44,091,000
Wyoming	6,218,859	6,100,000
Total bituminous ..	388,222,868	338,688,000
Anthracite:		
Colorado	45,113	30,000
New Mexico	17,000	10,000
Pennsylvania	86,279,719	80,240,000
Total anthracite ..	86,341,832	80,280,000
Grand total	474,564,700	418,968,000

(a) For the fiscal year ending June 30.

(b) For the 12 months ending November 30, 1907.

(c) As reported by the U. S. Geological Survey.

In the bituminous regions the effects of the panic were most seriously felt in the coking branch of the coal-mining industry, the Connells-ville and the Lower Connells-ville districts of Pennsylvania, the principal coke-producing centres, reporting a decrease in output amounting to nearly 50 per cent. See COKE.

In Utah, where the smallest percentage of decrease in coal production was reported, namely, 6 per cent., the production of coke decreased about 60 per cent. The largest percentage of decrease is reported from the southwestern counties of Virginia, where the production in 1908 is estimated at 60 per cent. of that of 1907, all of the decrease being attributed directly to the effects of the panic. The next largest percentage of decrease was reported from Michigan, where the production is stated to have fallen off between 25 and 35 per cent., largely as the result of slackened demand in the manufacturing cities along the Lake front, a slackening due directly to the panic. In the Southwestern States—Kansas, Oklahoma, Arkansas, and Texas—the coal production was influenced less by the financial conditions than by the competition of coal with fuel oil and natural gas, which

has developed through the bringing in of the mid-continent and Louisiana fields, in addition to the already developed Beaumont district.

A short cotton crop and a consequently lessened demand from ginning establishments, and a period of idleness from Apr. 1 to June 15, pending a settlement of the wage scale, also adversely affected coal production in these States. Conditions in the later months of the year showed some improvement as compared with those in the first part, but at no time was there any excess of demand over supply. In the States of the Middle West, operations were for a time suspended, pending an adjustment of the wage agreement; elsewhere there were no serious troubles from strikes or lockouts. The labor supply was usually abundant, and transportation facilities were adequate for the requirements.

Exports of coal and coke from the United States for the year ending Dec. 31, in long tons, were as follows:

	1907	1908	Changes.
Anthracite...	2,698,072	2,752,385	I. 54,286
Bituminous	10,454,677	9,100,819	D. 1,353,858

Total Coal...	13,152,749	11,853,177	D. 1,299,572
Coke	874,689	622,228	D. 252,461

Canada took in 1908, a total of 9,252,943 tons of coal. The decrease in coal in 1908 was 9.9 per cent.; in coke, 28.9 per cent. Imports of fuel into the United States, year ending Dec. 31, in long tons, were as follows:

	1907	1908	Changes.
Anthracite.....	9,896	16,483	I. 6,587
Bituminous ...	2,116,122	1,487,816	D. 629,006

Total coal...	2,126,018	1,504,299	D. 622,419
Coke	132,536	129,591	D. 2,945

Imports of coal were mainly on the Pacific Coast. Canada furnished 1,107,737 tons of coal and nearly all the coke in 1908; Australia, 327,441 tons of coal. The decrease in coal in 1908 was 29.3 per cent.; in coke, 2.2 per cent.

The coal mining industry during the year 1908 was marked by few labor disturbances, as in most States the general business conditions were such that the mine workers were only too glad to remain at work on terms previously arranged. In Alabama, from July to September, there was a strike carried on by the United Mine Workers of America. (See STRIKES AND LOCKOUTS; ALABAMA.) In Illinois during April and May, work was suspended while miners and operators endeavored to reach an agreement, and in Wyoming an unsuccessful attempt made by the operators to reduce wages from a scale adopted during the more prosperous times of 1907 resulted in a brief period of idleness, after which work was resumed at the old rate. In Pennsylvania an agreement for the mining scale for two years from April 1, 1908, to April 1, 1910, was reached by miners and operators, and assisted materially in establishing more stable conditions in the industry.

During the early part of the year much interest was manifested in the probable effect of the Hepburn law which became operative on May 1, 1908, as in the event of the enforcement of this measure, which prohibited the transportation of coal between States by railroads directly or indirectly interested, many of the larger companies, both anthracite and bituminous, would have been compelled to reorganize independently of railroad control. A test

case to determine the validity of the law was argued early in the year and a decision in favor of the railroads was given by the court. An appeal to the U. S. Supreme Court was taken by the government, but up to the end of the year no decision had been rendered. See RAILROADS.

The subject of the prevention of mine accidents attracted an unusual amount of attention during the year, as the problem was approached from several sides, all concerned anxious to diminish the risks in coal mining so often resulting in fatal disasters. On the part of the mine owners, in addition to studying every technical method available for the prevention of explosions and other catastrophes, it was determined that miners should receive a higher grade of instruction in the fundamental and elementary problems of coal mining. Certain of the larger companies established night schools for the instruction of the miners without cost, and these were availed of by the operatives. It was also proposed that miners should serve an apprenticeship before being permitted to work on their own responsibility, as one careless or indifferent miner often could endanger the lives of many of his fellows, not to mention the property of the owners. A demand was also made for higher qualifications on the part of mine foremen and mine fire-bosses who must be duly licensed.

The question of mine accidents continued to receive the attention of the U. S. Geological Survey and in accordance with the terms of an Act of Congress appropriating \$150,000 for the investigation of mine disasters, it was determined to establish rescue and experiment stations, each in charge of a government engineer, where oxygen helmets and other appliances, the advantage of whose use was demonstrated beyond question in several serious mine accidents during this and previous years, will be available for rescue work. The intention was to train rescue crews for the different mines, and to teach the use of the best and most approved apparatus, rather than for the government stations to carry on general rescue work. At each of the stations

there were to be provided air-tight rooms where gas could be introduced and the behavior of lamps and rescue apparatus studied by the miners under the most practical conditions.

The location of stations, so far as determined on during the year, was as follows: At Urbana, Ill., in connection with the University of Illinois, for a district including Illinois, Indiana, Michigan, Iowa, northern Missouri and western Kentucky; at Raton, New Mexico, for a district including New Mexico, Colorado, Wyoming, and Montana, with a second station possibly at Salt Lake City, Utah; at or near South McAlester, Oklahoma, for a district including Oklahoma, Arkansas, and southwestern Missouri; at an undetermined point (perhaps Knoxville, Tenn., Birmingham, Ala., or Lexington, Ky.) for a district including Alabama, Tennessee, Virginia, eastern Kentucky, Georgia, and southern West Virginia.

These stations were designed to serve a further purpose in that they would be headquarters for the Geological Survey engineers engaged in the study of the waste and other problems in coal mining.

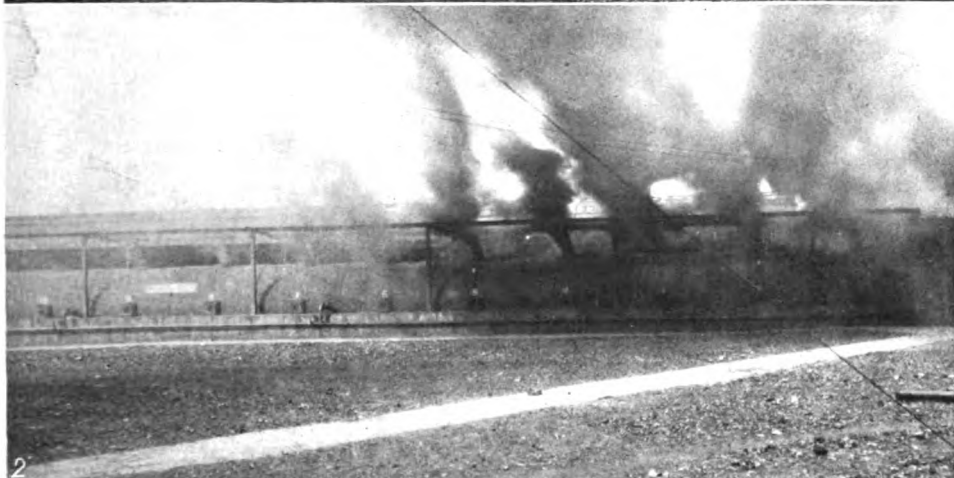
The government in common with the manufacturers of explosives during the year devoted considerable attention to the subject of blasting powder used in mines, and the technologic branch of the U. S. Geological Survey opened at Pittsburg, on Dec. 3, in the grounds of the U. S. Arsenal, an experiment station where elaborate apparatus was assembled for the investigation of mine explosives. There are gas and dust galleries of boiler plate steel, one of which is 100 feet in length by 6 feet 4 inches in diameter, where actual explosions can take place. At this station the aim was to ascertain the correct kind of powder to use in various kinds of mining with due regard to safety and efficiency. The blasting, or shot-firing, as it is termed, is a prolific source of accidents in coal mining, especially in the bituminous mines, and while in many cases the miner is negligent, in others, either the system or the material used may be responsible. It was proposed that the

WORLD'S PRODUCTION OF COAL, 1902 TO 1907 (METRIC TONS)

	1902	1903	1904	1905	1906	1907
Asia—						
China						10,450,000
India	7,543,272	7,557,400	7,682,319	7,921,000	9,783,250	11,200,000
Japan	9,701,682	10,088,845	11,600,000	11,895,000	12,500,000	12,890,000
Australia—						
New South Wales	6,037,083	6,456,524	6,116,126	6,035,250	7,748,384	7,850,000
New Zealand	1,386,881	1,442,916	1,562,443	1,415,000	1,600,000	1,784,000
Other States	931,148	771,536	769,723	805,000	970,000	800,000
Europe—						
Austria-Hungary *	39,479,560	40,160,823	40,334,681	40,725,000	37,612,000	39,876,511
Belgium	22,877,470	23,913,240	23,380,025	21,844,200	23,610,740	23,824,499
France	29,997,470	34,906,418	34,502,289	36,048,264	34,313,645	37,022,556
Germany *	150,600,214	162,457,253	169,448,272	173,663,774	193,533,259	205,542,688
Italy	413,810	346,887	359,456	307,500	300,000	225,000
Russia	16,465,836	17,500,000	19,318,000	17,120,000	16,990,000	17,800,000
Spain *	2,807,550	2,800,843	3,123,540	3,199,911	3,284,576	3,250,000
Sweden	304,733	320,390	320,984	331,500	265,000	305,000
United Kingdom	230,728,563	233,419,821	236,147,125	239,888,928	251,050,809	267,828,276
North America—						
Canada, West	1,826,221	1,791,798	2,619,816	3,183,909	3,717,816	4,700,301
Canada, East	4,699,396	4,700,645	4,194,939	4,775,802	6,196,360	5,730,660
United States	273,600,961	317,272,110	318,275,920	351,120,625	375,397,204	430,430,183
South Africa	2,213,275	2,957,736	3,015,000	3,218,500	3,900,000	3,945,043
Other countries	3,500,000	4,000,000	4,250,000	4,550,000	5,500,000	3,475,780
Total	804,115,125	882,865,185	867,020,658	928,049,163	988,173,043	1,089,110,496

* Includes lignite.

Mineral Industry, Vol. XVI.



TESTING PLANT OF THE TECHNOLOGIC DIVISION

OF THE UNITED STATES GEOLOGICAL SURVEY AT PITTSBURG ARSENAL, PITTSBURG, PA.

1. General view of Explosives Chamber where explosives are tested in the presence of fire damp and cold dust.
2. View of Explosives Chamber taken fifteen seconds after explosion ; demonstrating that coal dust is explosive.
3. Members of Government Rescue Corps equipped to enter mine where disaster has taken place, showing oxygen tanks and other appliances.

shot-firing should be done by a special corps of employees at the close of the days' work, as is successfully done in certain mines both in Europe and America, but this is opposed on the score of economy, and was considered to be not without dangers of its own. The proper discipline of a mine must be maintained under all hazards, as a model mine under lax conditions can be quite as dangerous as one ill equipped and poorly conducted. This was shown in the disaster in the Marianna mine of the Pittsburg-Buffalo Co., at West Bethlehem, Pa., Nov. 28, 1908, where the use of black powder and the violation of blasting rules were deemed responsible for an explosion of gas and dust, which caused the loss of 154 lives, in what was considered a well planned and well operated mine. On Dec. 29, an explosion occurred at the Lick Branch mines in West Virginia, in which 51 miners were killed. The only other serious accident in 1908 was in January, at the Hanna mine, in Wyoming, where 70 men lost their lives. On the whole, the record for the year 1908 as regards the number of deaths in the coal mines, was much more favorable than in 1907, and the aggregate mortality was several hundred less than in that year. According to the estimates of the U. S. Geological Survey in 1907, 3,125 men lost their lives in the coal mines of the United States, or a death rate of 4.86 to every 1,000 employed, which was three to four times that of any coal producing country of Europe. In December, 1907, four explosions caused the death of 700 men, so that when compared with the accidents mentioned above for 1908, the improvement in the latter year readily will be seen.

COCAINE HABIT. The use of cocaine as a vice did not diminish, and the wide spread of the practice caused the enactment of strict regulations for the sale and distribution of the drug in many cities and States. In New York City the first conviction, on May 14, 1908, under the new law, resulted in the sentence of the offender, a Mott street druggist, to the maximum penalty of one year in prison and a fine of \$1,000. Arrests and convictions were reported from several States. New York, Baltimore, Chicago, and Boston were all most active in the crusade. Gordon, of Philadelphia, has made studies of the acute and chronic intoxications of cocaine and opium. He reported 15 cases of acute and 10 of chronic cocaine poisoning. Two of the acute cases who had taken the drug with suicidal intent, died. Cocaine is a powerful cerebral and spinal poison, and gives rise to a great variety of nervous and mental symptoms. In the chronic cases reported it was noteworthy that in six out of the ten the habit was acquired while under treatment for nasal affections. Besides various delusions there is a gradual and progressive loss of intellectual force and moral sense. See "Insanities Caused by Acute and Chronic Intoxications with Opium and Cocaine," by Alfred Gordon, M. D., in the *Jour. Am. Med. Asso.*, Vol. LI., p. 97.

COCHIN-CHINA. A French colony in Indo-China. Area, about 21,900 square miles; population (1906), 2,834,667, including 230,000 Cambodians, 100,000 Chinese, and 5500 Europeans. There are about 1,700,000 Buddhists and 50,000 Roman Catholics. Saigon, the capital and principal port, has about 51,000 inhabitants; Cholon, the largest city, 173,000. Of the 1,-

522,666 hectares (1 hectare = 2.47 acres) under cultivation, rice takes up 1,358,706. Other crops are maize, beans, sweet potatoes, betelnuts, oranges, bananas, sugar-cane, coffee, tobacco, cotton, pepper, cocoanuts, earth-nuts, etc. The cultivation of the ylang-ylang tree, famous for its yield of perfumery essences, has been successfully introduced on several estates. Forests cover 1,748,700 hectares. Extensive irrigation and drainage works are being carried out in the central and southwestern provinces. In some of the larger towns there are rice and saw mills, soap and varnish factories, etc. Coal is mined, and the fisheries are extensive. There are few good roads, but the numerous rivers and canals are navigated by thousands of boats. The imports and exports are included in those of French Indo-China (q. v.). The export of rice through the port of Saigon in 1907 was 1,052,944 metric tons. The colony is administered by a lieutenant-governor, assisted by a privy council and a colonial council; the latter contains several natives.

COCOS, or KEELING ISLANDS. A group of small coral islands in the Indian Ocean, attached to the Straits Settlements (q. v.) and incorporated with Singapore. In 1904 there were 640 inhabitants, mostly Malays. Cocanuts and cocoanut oil are produced. The export of copra is about 800 tons annually.

COFFEE. The great consumption of coffee in the United States and the possibilities for its extensive culture for the American market in its colonial possession caused coffee to be a topic of considerable discussion in 1908. Of the coffee imports into the United States, taking the fiscal year 1908 as an example, out of the 890,000,000 pounds imported, practically 700,000,000 came from Brazil, another 100,000,000 from other South American countries, 70,000,000 from Mexico and Central America, and 7,500,000 from the West Indies, the remainder coming from parts of the world other than America. Of this remainder, 9,000,000 pounds came direct from the East Indies, 2,000,000 from Netherlands, presumably brought from her East Indian possessions, 4,000,000 from Asia and Oceania, other than the East Indies, and about another 1,000,000 pounds from United Kingdom, Germany, and other European countries, presumably the product of their tropical colonies. Thus America supplies practically 98 per cent. of the coffee imported into the United States.

In addition to imports from foreign countries, small quantities, especially of coffee, were being brought into the United States from its own islands. From Hawaii, in which the production of coffee is a comparatively new industry, the quantity of the coffee brought into the United States in the fiscal year 1908 was 1,310,000 pounds. From Porto Rico, in which the coffee industry is well established, but which sells its coffee chiefly to European countries, the quantity brought into the United States during the year mentioned was but 129,000 pounds—Porto Rico's exportation of coffee to foreign countries in the fiscal year 1908 having amounted to about 35,000,000 pounds. From the Philippines the quantity brought to the United States has been very small, in many years none. The coffee industry in those islands, which was formerly very prosperous, has in recent years suffered to such extent from

a blight that exportations from the islands have practically ceased, though the fact that similar conditions which overtook the coffee industry in the Dutch East Indies were successfully combated and the production and exportation of coffee shortly resumed, suggested that the Philippines, with proper attention, again might become large producers and exporters of coffee.

The United States is the world's largest consumer of coffee. Coffee importations by the principal countries of the world in 1906, amounted, according to a statement of the Department of Agriculture, to 2,577,000 pounds, of which 985,000,000 were imported by the United States, 412,000,000 by Germany, 256,000,000 by Netherlands, 216,000,000 by France, 119,000,000 by Belgium, and 113,000,000 by Austria-Hungary, while in no other country does the total reach as much as 100,000,000 pounds.

In 1888, the quantity of coffee imported was 423,000,000 pounds, and in 1908, 890,000,000 pounds, though the quantity has fluctuated from year to year. The per capita consumption, which in 1868 was 6.52 pounds, in 1878, 6.24, and in 1888, 6.81, was in 1898, 11.68 pounds, and in 1908, 10.04 pounds. See BRAZIL, section on *Agriculture*.

COGHLAN, JOSEPH BULLOCK. An American naval officer, died at New Rochelle, N. Y., on Dec. 5, 1908. He was born in Frankfort, Ky., on Dec. 9, 1844, and graduated from the United States Naval Academy at Annapolis in 1863. He saw service during the Civil War on the *Sacramento*; became lieutenant in 1866, lieutenant-commander in 1868, commander in 1882, captain in 1896, and rear-admiral in 1902. He commanded the *Raleigh* in the battle of Manila Bay (May 1, 1898), and

afterwards destroyed the batteries at the entrance of the bay and captured the *Isla Grande* in Subig Bay. He was commandant of the Brooklyn Navy Yard from 1904 to 1907, although placed on the retired list in Dec., 1906. Admiral Coghlan's frankness and manner of speaking his mind, while making him one of the most popular officers in the navy, got him into trouble with the Navy Department on several occasions. His recitation of the "Hoch der Kaiser" doggerel at the Union League Club, New York, (Aug. 19, 1899), on his return from the Philippines, cost him a reprimand, while in 1876 he had been court-martialed and lost thirteen numbers in grade because of a letter written by him to the department. He was advanced five numbers in rank for his services at Manila and later had his thirteen numbers restored to him.

COGSWELL, JAMES KELSEY. An American naval officer, died at Jacksonville, Fla., on Aug. 12, 1908. He was born on Sept. 27, 1847, at Milwaukee, Wis., and entered the Naval Academy in 1863. He gained his commission as ensign in 1869, was advanced to master in 1870, lieutenant in 1874, and after twenty-one years' service in that grade became a lieutenant-commander in 1895. The outbreak of the Spanish War found him executive officer of the battleship *Oregon*, on the Pacific coast, and he participated in the voyage around South America and in the battle of Santiago on that ship, being advanced five numbers in grade for his services. He became commander in 1899, captain in 1904, and retired the same year, with the rank of rear-admiral.

COINS, FOREIGN, VALUE OF. The accompanying table indicates the values of foreign coins in United States money on Jan. 1, 1909:

COUNTRY	Standard	Monetary unit	Value in terms of U. S. gold dollar	Coins
Argentine Republic..	Gold.....	Peso.....	\$0.965	Gold: argentine (\$4.824) and ½ argentine. Silver: peso and divisions.
Austria-Hungary.....	Gold.....	Crown.....	.203	Gold: 10 and 20 crowns. Silver: 1 and 5 crowns.
Belgium.....	Gold.....	Franc.....	.193	Gold: 10 and 20 francs. Silver: 5 francs.
Bolivia.....	Silver.....	Boliviano.....	.365	Silver boliviano and divisions.
Brazil.....	Gold.....	Milreis.....	.546	Gold: 5, 10, and 20 milreis. Silver: ½, 1, and 2 milreis.
British Possessions, N. A. (except Newfoundland).	Gold.....	Dollar.....	1.000	
Central Amer. States—Costa Rica.....	Gold.....	Colon.....	.465	Gold: 2, 5, 10, and 20 colons (\$9.307). Silver: 5, 10, 25, and 50 centimos.
British Honduras.....	Gold.....	Dollar.....	1.000	
Guatemala.....	Silver.....	Peso.....	.365	Silver: peso and divisions.
Honduras.....				
Nicaragua.....				
Salvador.....				
Chile.....	Gold.....	Peso.....	.365	Gold: escudo (\$1.825), doubloon (\$3.650), and condor \$(7.300). Silver: peso and divisions.
China.....	Silver....	Tael...	Amoy.....	.598
			Canton.....	.597
			Cheefoo.....	.572
			Chin Kiang.....	.584
			Fuchau.....	.553
			Halkwan.....	.609
			(Customs)	
			Hankow.....	.560
			Kiaochow.....	.580
			Nankin.....	.592
			Niuchwang.....	.561

COUNTRY	Standard	Monetary unit	Value in terms of U.S. gold dollar	Coins
China	Silver....	Tael... { Ningpo..... .575 Peking..... .583 Shanghai... .546 Swatow..... .553 Takau..... .602 Tientsin.... .580 Dollar { Hongkong.. .393 British..... .393 Mexican.... .396 1.000		
Colombia.....	Gold.....	Dollar..	1.000	Gold: condor (\$9.647) and double-condor. Silver: peso.
Denmark.....	Gold.....	Crown.....	.268	Gold: 10 and 20 crowns.
Ecuador.....	Gold.....	Sucres.....	.487	Gold: 10 sucres (\$4.8665). Silver: sucre and divisions.
Egypt.....	Gold.....	Pound (100 piasters).	4.943	Gold: pound (100 piasters), 5, 10, 20, and 50 piasters. Silver: 1, 2, 5, 10, and 20 piasters.
Finland.....	Gold.....	Mark.....	.193	Gold: 20 marks (\$3.859), 10 marks (\$1.93).
France.....	Gold.....	Franc.....	.193	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.
German Empire.....	Gold.....	Mark.....	.238	Gold: 5, 10, and 20 marks.
Great Britain.....	Gold.....	Pound sterling.....	4.866½	Gold: sovereign (pound sterling) and ½ sovereign.
Greece.....	Gold.....	Drachma.....	.193	Gold: 5, 10, 20, 50, and 100 drachmas. Silver: 5 drachmas.
Haiti.....	Gold.....	Gourde.....	.965	Gold: 1, 2, 5, and 10 gourdes. Silver: gourde and divisions.
India [British].....	Gold.....	Pound sterling*.....	4.866½	Gold: sovereign (pound sterling). Silver: rupee and divisions.
Italy.....	Gold.....	Lira.....	.193	Gold: 5, 10, 20, 50, and 100 lire. Silver: 5 lire.
Japan.....	Gold.....	Yen.....	.498	Gold: 5, 10, and 20 yen. Silver: 10, 20, and 50 sen.
Liberia.....	Gold.....	Dollar.....	1.000	
Mexico.....	Gold.....	Peso †.....	.498	Gold: 5 and 10 pesos. Silver: dollar‡ or peso and divisions.
Netherlands.....	Gold.....	Florin.....	.402	Gold: 10 florins. Silver: 2½, 1 florin and divisions.
Newfoundland.....	Gold.....	Dollar.....	1.014	Gold: 2 dollars (\$2.028).
Norway.....	Gold.....	Crown.....	.268	Gold: 10 and 20 crowns.
Panama.....	Gold.....	Balboa.....	1.000	Gold: 1, 2½, 5, 10, and 20 balboas. Silver: peso and divisions.
Persia.....	Silver.....	Kran.....	.067	Gold: ½, 1, and 2 toman (\$3.409). Silver: ¼, ½, 1, 2, and 5 kran.
Peru.....	Gold.....	Libra.....	4.866½	Gold: ½ and 1 libra. Silver: sol and divisions.
Philippine Islands...	Gold.....	Peso.....	.500	Silver peso: 10, 20, and 50 centavos.
Portugal.....	Gold.....	Milreis.....	1.080	Gold: 1, 2, 5, and 10 milreis.
Russia.....	Gold.....	Ruble.....	.515	Gold: 5, 7½, 10, and 15 rubles. Silver: 5, 10, 15, 20, 25, 50 and 100 copeks.
Spain.....	Gold.....	Peseta.....	.193	Gold: 35 pesetas. Silver: 5 pesetas.
Straits Settlements...	Gold.....	Pound sterling \$....	4.866½	Gold: sovereign (pound sterling). Silver: dollar and divisions.
Sweden.....	Gold.....	Crown.....	.268	Gold: 10 and 20 crowns.
Switzerland.....	Gold.....	Franc.....	.193	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.
Turkey.....	Gold.....	Piaster.....	.044	Gold: 25, 50, 100, 250, and 500 piasters.
Uruguay.....	Gold.....	Peso.....	1.034	Gold: peso. Silver: peso and divisions.
Venezuela.....	Gold.....	Bolivar.....	.193	Gold: 5, 10, 20, 50, and 100 bolivars. Silver: 5 bolivars.

NOTE.—The coins of silver standard countries are valued by their pure silver contents, at the average market price of silver for the three months preceding the date of this circular.

* The sovereign is the standard coin of India, but the rupee (\$0.3244 1-3) is the current coin, valued at 15 to the sovereign.

† Seventy-five centigrams fine gold.

‡ Value in Mexico, \$0.498.

§ The current coin of the Straits Settlements is the silver dollar issued on government account and which has been given a tentative value of \$0.567758 1-3.

COKE. It was estimated by the United States Geological Survey that the decrease in coke production in 1908 was much larger than the decrease in the output of coal, for the production of coke in Pennsylvania in 1908 did not exceed 60 per cent. of that of the preceding year, with values showing a still larger decrease. The decrease in the production of coke in the Connellsville and the lower Connellsville districts—the principal coke-producing regions of the State—was estimated to amount to somewhat over 9,400,000 tons, as compared with

1907. In that year the production of the Connellsville district alone was 13,089,427 short tons, and that of the lower Connellsville district was 6,310,900 tons, making a total for the two districts of 19,400,327 short tons.

The accompanying table from the *Engineering and Mining Journal* gives the production of coke in the United States for 1907 and 1908.

PRODUCTION OF COKE IN THE UNITED STATES

(*Engineering and Mining Journal*)

States	1907 Short tons	1908 Short tons
Alabama	3,096,722	2,800,000
Colorado	1,097,061	864,000
Georgia and North Carolina	71,460	70,000
Illinois	372,697	270,000
Kentucky	77,065	60,000
Montana	31,400	30,000
New Mexico	203,437	260,000
Ohio	310,640	250,000
Oklahoma	57,600	50,000
Pennsylvania	23,516,309	11,287,000
Tennessee	495,200	250,000
Utah	324,692	290,000
Virginia	1,622,734	1,200,000
Washington	61,400	48,000
West Virginia	4,078,222	2,978,000
Other States a.	1,650,000	2,000,000
Total	37,066,619	22,697,000

a Includes output of by-product coke for Massachusetts, Maryland, Minnesota, New York, Michigan, Wisconsin, New Jersey.

The number of coke ovens in the United States at the beginning of 1908 was 99,680, of which 3,892 were by-product ovens where gas, tar, and ammonia compounds are obtained in addition to the coke. During the year the number of retort ovens of the United-Otto type were built at Kokotto, Ohio, and a large installation of Koppers regenerative ovens for the Illinois Steel Co., at Joliet, Ill. Of the 280 of these by-product ovens to be added to the plant, two batteries of 70 each were put in operation in 1908. It would seem hard to understand the reluctance of coke manufacturers to introduce more of the by-product recovery ovens in place of the older and usual bee-hive oven, as, computing the value of the by-products on the basis of those obtained from retort ovens in 1907, \$7,548,071, the waste of by-products in the bee-hive oven amounted to over \$55,000,000.

COLLEGE OF THE CITY OF NEW YORK. See NEW YORK, COLLEGE OF THE CITY OF. **COLLEGES, AGRICULTURAL.** See AGRICULTURAL EDUCATION.

COLLINS, JOHN CHURTON. An English educator and author, died on Sept. 15, 1908. He was born in Gloucestershire, on Mar. 26, 1848, and graduated at Oxford in 1872. In 1904 he was appointed professor of English literature at Birmingham University. He was an earnest advocate of popular higher education, and was prominent in the university extension movement. He was also a Shakespearean scholar, and wrote numerous critical essays on Shakespeare and other poets. His publications include: *Sir Joshua Reynolds as a Portrait Painter* (1874); *Ephemeris Critica* (1901); and *Rousseau and Voltaire in England* (1908).

COLOMBIA. A republic of South America, covering an area variously estimated at from

438,436 to 465,700 square miles. In 1908 the population was estimated at 4,141,791. The principal cities, with their estimated populations, are: Bogotá, the capital, 100,000; Medellín, 54,000; Barranquilla, 42,000; Bucaramanga, 25,000; Manizales, 24,700; Cartagena, 14,000; Zipaquirá, 12,000.

EDUCATION. Primary education is free, but not compulsory, and is largely maintained by the state. There are several colleges and normal schools, a school of mining at Zipaquirá, a school of fine arts and a school of arts and crafts at Bogotá, etc. Nearly all schools of secondary education, though maintained or assisted by the state, are under the management of the Catholic Church. The national university at Bogotá has now only a school of medicine and natural science. Other educational institutions at Bogotá are: A national academy of music, a school of commerce, a normal school, an engineering school, an astronomical observatory, etc. The number of pupils in the public schools was 223,426 in 1907 and 236,985 in 1908.

FISHING. The marine fisheries furnish green turtles, Spanish mackerel, jewfish, red snapper, tarpon, and other valuable market fishes. The Bay of Cartagena is rich in lobsters, sponge beds, and mother-of-pearl.

MINING. The mineral wealth is great. English engineers have stated that the mineral deposits of the region of Marmoto and the Rio Sucio are richer than those of the Transvaal. The coast region, on both the Pacific and Atlantic side, is rich in coal, iron, copper, lead, cinnabar, etc. Coal and petroleum have been discovered in the region of the Gulf of Uraba, between the Atrato and Leon rivers. This is supposed to be the extension of the coal and oil belt known to reach from near Cartagena to the valley of the river Sinu. The Cartagena Oil Company, with a nominal capital of \$150,000, has been formed at Bogotá. It is to refine petroleum on the Atlantic coast, and a plant was to be installed in 1908. A large French company has been formed to operate mines in the department of Santander, and in 1908 engineers and machinery arrived. The emerald mines at Muzo, department of Boyacá, are owned by the government and worked through a Colombian company. The revenue derived from them is about \$800,000 annually. The value of the salt derived in 1907 from the government mines was \$525,620, the cost of production having been \$158,507. The exports of precious metals from the department of Antioquia through Cartagena amounted in 1907 to 2081 kilograms of gold bullion, 497 kilograms of platinum, and 4723 kilograms of silver and gold in other forms. The exports of precious metals through Barranquilla in the same year amounted to 6010 kilograms.

AGRICULTURE. The coffee production averages about 600,000 bags annually, of which about 67 per cent. is shipped to the United States. Banana culture is extending in the department of Magdalena, both Colombian and foreign capital being invested in this industry. In 1907 there were exported 1,858,970 bunches of bananas, valued at \$711,574. There has been but little increase in the output of rubber, although the plantations are extending. There are reported to be 400,000 rubber trees along the Baudo river, 200,000 trees along the Arquía, and 1,000,000 in the valley of the Sinu, but a very small number can as yet be tapped. When these trees reach

the tapping age the output will no longer depend on wild trees, which are now frequently cut down or allowed to tap so long that they die for lack of sap. Ivory nuts are exported from the basin of the Atrato, the Leon, and the region adjoining the Gulf of Uraba. In the neighborhood of Sincerin 1300 men were employed in 1908 in planting 3000 acres with cane and installing a sugar factory. The first harvest was expected to reach 12,000 metric tons, yielding 265,000 bags of sugar. At Cartagena there is a cotton factory using only native cotton, which is produced chiefly in the department of Bolivar. A new fibre was reported to have been discovered in 1908, particularly fitted for the manufacture of curtains. The agricultural census of the department of Antioquia for 1907 showed the following areas for particular crops: Coffee, 26,820 hectares; sugar cane, 33,268; maize, 178,599; rice, 3825; beans, 35,369; bananas, 21,969; potatoes, 5043; barley, 149; wheat, 1092; yucca, 21,955. There were also 115,670 hectares under rubber plants, 440,120 under grass, 1,733,095 under forest, and 4,111,322 of public lands. The total area is 6,728,296 hectares.

MANUFACTURES. At Cartagena there is a cotton factory with 6116 spindles and 104 looms. Its annual consumption is about 175,000 pounds of ginned native cotton, and its output is nearly 500,000 yards of drills. There is also a shoe factory employing 30 workers in which American machinery has recently been installed; this will increase its output to 400 pairs a day. A brick and tile factory employs 200 hands. At Medellin, a hosiery factory has been established, using American machinery and yarns. Another weaving mill was being put up which was expected to begin working towards the latter part of 1908. All machinery for the latter has come from England. A spinning mill was to be added to this establishment later. Barranquilla has quite a number of industrial establishments. A match factory, employing 40 workers, has been established at Bogotá. It is under the direction of a Danish chemist, and has proved a commercial success.

COMMERCE. In 1907, the total imports were valued at \$12,488,563, against \$9,353,345 in 1906, and the exports at \$13,791,442, against \$14,613,919 in 1906. The leading exports are gold, platinum, coffee, rubber, ivory nuts, tobacco, dividivi, ipecac, cedar, mahogany, and hides. The leading imports are flour, lard, sugar, rice, potatoes, cotton goods, and petroleum. Over one-third of the entire trade is with the United States and about one-fourth with Great Britain. About one-half the entire trade passes through the port of Barranquilla.

In Jan., 1908, the rate of exchange of paper for gold suddenly rose from the prevailing or official rate of 10,000 per cent. (i. e. 10,000 paper dollars for 100 Colombian gold dollars), and was quoted as high as 13,000 per cent. during the next few months. Merchants naturally stopped all business on credit terms, but their losses on previous sales were very large. Imports were stopped, and goods previously ordered were stored in Europe. Towards Oct., 1908, exchange had again fallen to nearly its former level, due to reduced imports, as well as to the sale of an abundant coffee crop. But trade had become unsettled and was slow to recover. On Mar. 31, 1908, President Reyes issued a decree reducing the salaries of all government employees by 15 per cent., and providing that the savings

resulting therefrom, as well as from the reduction of 20 per cent. in appropriations for government expenditure in 1908, shall constitute a reserve fund to guarantee the legal value of paper money or to secure its conversion into coin.

COMMUNICATIONS. The total length of railways open in 1908 was 461 miles, and of telegraph lines, 10,354 miles. Several wireless stations have been established, and Bogotá is now in wireless connection with Santa Marta. Railroad subsidies in 1908 amounted to \$900,000 gold.

FINANCE. For 1907, the revenue and expenditure were estimated to balance at \$15,494,583. The internal revenue in 1907 yielded \$5,706,143. The expenditure for 1908, originally fixed at \$16,244,384, was reduced in March, 1908, to \$14,237,997. The proposed budget for 1909 estimated the revenue at \$16,000,000 and the expenditure at \$14,000,000, leaving a surplus of \$2,000,000 as a guarantee of the legal value of paper money. The internal floating debt, exclusive of the paper money, amounted on June 30, 1908, to \$3,063,012 gold. The consolidated internal debt amounted at the end of 1906 to \$5,476,887 silver, and the external debt was 81,430,350 francs.

ARMY AND NAVY. The strength of the national army, in which every able-bodied citizen is liable to service, is fixed annually by act of Congress. The effective peace strength in 1908 was 5000 men, and the number available for war service was estimated at 200,000. The effective navy consisted at the beginning of 1908 of two gunboats, of 1430 tons.

GOVERNMENT. General Rafael Reyes was elected President of the Republic in 1904 for the constitutional term of four years. In 1905, his term of office was extended, by a resolution of the General Assembly, to ten years—until 1914.

HISTORY. On Oct. 24, 1907, ratifications were exchanged for the Treaty of Amity, Commerce and Navigation with Ecuador. In April, 1908, President Reyes made a tour of the country for the purpose of studying its economic conditions, and in his report urged increased cultivation of the quickly grown crops. In his message on the opening session of Congress, on July 20, 1908, he comments on the satisfactory state of affairs at home and of relations with foreign countries, and notes especially the improvement in public instruction throughout the Republic. In the report of July, 1908, by the Minister of Foreign Relations, it was announced that the legation in Washington had received instructions to incorporate in a treaty with the United States the most favorable conditions possible as to traffic through the Panama Canal. On Aug. 11, a law was promulgated doing away with the old political divisions and re-dividing the country into thirty-four Departments, each of which was to pay its revenues to the Federal treasury. This was to become operative on Jan. 1, 1909. On Aug. 21, the National Assembly ratified the Sanitary Convention, which had been concluded in Washington on Oct. 14, 1905. To carry its provisions into effect, a sanitary maritime and land police was established in the Republic, and it was provided that the president should establish the requisite sanitary stations at Cartagena and Buena Ventura. On Aug. 19 the Assembly ratified the Convention in regard to the rights of aliens, which had been concluded at the second international conference of Ameri-

can States in Mexico in 1902. Other international agreements ratified by Congress before its adjournment in August were the convention fixing the status of naturalized citizens who again took up their residence in the country of their origin; an industrial property convention between Colombia and Great Britain; a convention supplementing the boundary treaty between Colombia and Ecuador; a convention on pecuniary claims concluded at the third international conference of American States; a convention on the exchange of official publications, and treaties of commerce with Switzerland and Japan. In April, a Colombian force occupied for a short time, the town of Jurado, in Panama, because of the latter's failure to meet its financial obligations towards Colombia. At the end of the year a settlement between Colombia and Panama was near completion. In full satisfaction of her claims arising from the Panama revolution, Colombia was to receive \$2,500,000 in nine installments. On Sept. 19, occurred the death of ex-president J. M. Marroquin, under whose rule Panama seceded from Colombia.

COLORADO. One of the western States of the Western Division of the United States. Its area is 103,058 square miles of land surface, and 290 square miles of water surface, or a total of 103,948 square miles. Its population in 1900 was 539,700. According to Federal estimate of 1908, the population in that year was 640,861. The estimated population of the largest cities in 1907 was as follows: Denver, the capital, 151,920; Pueblo, 30,824; Colorado Springs, 29,338; Leadville, 13,697.

MINERAL RESOURCES. Mining is the principal industry of the State. The aggregate value of the mineral production of the State, according to figures given by the United States Geological Survey, was \$71,105,128 in 1907 as compared with \$69,834,581 in 1906. The figures for the mineral production for 1908 showed an increase in the gold production, but a decided falling off in the output of the other metals. Both placer and auriferous lode mines increased their yield. The feature of the operations of the precious metal mines of the State in 1908 was a further extension of the leasing system in the camps of Cripple Creek, Empire, Silverton, Ouray, Telluride, and Central City. Because of the low metal prices during the latter part of 1907 and throughout 1908, the operations of the silver, lead, and zinc camps were greatly curtailed. Many of the largest mines closed in 1907 and remained closed during 1908. Work was carried on at Cripple Creek during the year in proportions greatly increased over 1907. Work on the Roosevelt drainage tunnel progressed steadily throughout the year with an aggregate of 4171 feet on Dec. 1, 1908. Its completion by Jan. 1, 1910, was predicted. The production of Leadville fell off greatly during the year. Several of the largest properties were closed the entire year, but two resumed operations in Dec., 1908. The Director of the Mint estimates the gold production of the State in 1908 at \$22,811,734, as against \$20,897,600 in 1907; and the output of silver at 10,161,318 fine ounces, as against 11,495,400 in 1907. Colorado leads in the production of lead. In 1907, there were produced 48,876 short tons, valued at \$5,180,856, as compared with 50,497 tons in 1906, valued at \$5,756,058. It was estimated

that the production of coal in the State in 1908 would be 9,773,000 tons, a decrease of somewhat more than 1,000,000, as compared with 1907. The decrease was attributed mainly to financial conditions, which resulted in shutting down many of the fuel consuming industries in the State. The total number of men employed in the coal mines of the State in 1907 was 14,223 as compared with 11,368 in 1906. There were 99 men killed in the coal mines of the State in 1907. Las Animas county produces nearly one-half the total. There is practically every variety of coal, from lignite to anthracite, although the bulk of it is bituminous. The production of coke in 1907 was 1,421,579 short tons, valued at \$4,747,436. These figures include Utah, where, however, there are but two establishments. The production for 1906 was 1,455,905 tons, valued at \$4,504,748. There are sixteen establishments for the production of coke in the State. There was a remarkable increase in the production of copper in 1907 over the figures of the preceding year. In the former year there were produced 11,998,496 pounds, valued at \$2,799,699, while the production in 1906 was 7,427,253 pounds, valued at \$1,433,460. Other leading mineral products are bismuth, tungsten, petroleum, sandstone, limestone, iron (brown hematite), zinc, gypsum, and mica.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in 1908 were as follows, according to figures of the United States Department of Agriculture: Corn, 2,586,000 bushels, valued at \$1,836,000, from 128,000 acres; spring wheat, 6,153,000 bushels, valued at \$5,415,000, from 293,000 acres; oats, 7,031,000 bushels, valued at \$3,797,000, from 178,000 acres; barley, 792,000 bushels, valued at \$515,000, from 24,000 acres; rye, 46,000 bushels, valued at \$32,000, from 3,000 acres; potatoes, 7,000,000 bushels, valued at \$4,250,000, from 56,000 acres; hay, 1,675,000 tons, valued at \$14,656,000, from 670,000 acres. Since 1900 there has been a substantial increase in acreage of oats and potatoes and a great decrease in the acreage of hay. The latter is the most valuable crop produced in the State. There was a slight decrease in the hay grown as compared with 1907, when the production was 1,828,000 tons. There was a large decrease also in the production of wheat, of which 8,497,000 bushels were grown in 1907. The production of oats, however, increased considerably from the crop of 1907, which was 5,890,000 bushels. The other crops show little variance from those of 1908. The State ranks first in the production of beet sugar. The yield in 1908 was estimated at 110,000 long tons. The number of farm animals on Jan. 1, 1909, was as follows: Horses, 275,000; milch cows, 158,000; other cattle, 1,454,000; sheep, 1,695,000; swine, 165,000. There has been a large increase in the last few years in the number of dairy cows and a substantial, though smaller increase in other cattle. The estimated value of the wool clip in 1908 was \$1,411,200.

MANUFACTURES. The 1905 census covering all establishments classed as factories showed a total of 1606 establishments, an average of 21,813 wage-earners and products valued at \$100,143,999. Compared with the same industries in 1900, when the similar establishments numbered 1323, there was an increase of 11.8 per cent. in

the number of wage-earners and of 12.4 per cent. in the value of products. The value of products of leading industries, exclusive of smelting and metallurgical works, in 1905, and in parentheses the increase in value since 1900, were as follows: Beet sugar, \$7,198,982; flour and grist mill products, \$5,783,421 (30 per cent.); railway shop work, \$5,259,183 (69.8 per cent.); printing and publishing, \$5,452,435 (53 per cent.); foundry and machine shop products (3 per cent.); slaughtering and meat packing (23.7 per cent. decrease); bread and bakery products (65.7 per cent.); malt liquors, \$2,120,187 (3.9 per cent.); lumber and timber products, \$1,753,791 (11 per cent.); and coke, \$1,723,276 (42 per cent.).

EDUCATION. The most important features of educational progress in the State in the last few years have been the erection of several hundred substantial school buildings, a marked increase in high school enrollment, and the introduction of manual training and domestic science into many city schools. According to the last biennial report of the State Superintendent of Public Instruction there were, in 1908, 207,573 persons in the State of school age (6 to 21). The total enrollment in public schools was 149,307 in 1907, and the average daily attendance, 101,113 in 1907. The enrollment in private schools was 3288. The number of teachers employed numbered 5000, of whom 4169 were female. The average salary of male teachers was \$93.42 in the city and \$57.75 in rural schools and of female teachers \$63.28 and \$50.95 respectively. The total expenditures for public schools in 1907 was \$4,578,852.

FINANCE. According to the biennial report of the State Treasurer, the balance in the treasury, Dec. 1, 1908, was \$2,820,269.19. The receipts for 1907-8 were \$6,852,934.21; the balance in the treasury, Dec. 1, 1906, was \$2,814,070.52; the total receipts for 1907-8 were \$9,667,004.73; the disbursements for 1907-8 were \$6,846,730.54, leaving a balance on Dec. 1, 1908, as indicated above. The floating indebtedness of the State on Nov. 30, 1908, was \$3,824,556.66. The bonded indebtedness was \$4,218,056.06, leaving the total debt, less cash in the treasury and uncollected taxes, \$1,583,137.32.

CHARITIES AND CORRECTIONS. For the support of the State Insane Asylum there was expended \$20,035.24, and for the support of the mute and blind, \$142,872.56. The receipts for penitentiary convict labor were \$57,435.44, and the disbursements, \$56,484.61, leaving a balance of \$965.06.

POLITICS AND GOVERNMENT. There was no meeting of the legislature in Colorado in 1908. A notable decision in the land fraud prosecutions, instituted by the government for the unlawful seizure of public lands, was handed down at Denver on Jan. 10, by Judge Robert E. Lewis, of the United States District Court. Certain prominent business men of Colorado had been indicted on a charge of violating the law in timber land transactions. This law was the Timber and Stone Act of 1878, which has been the instrument by which the greater part of the more valuable timber lands not now in National Forests has gone into the hands of the large timber companies. The Act provides that stone or timber lands from the public domain may be sold to American citizens, or to persons who have declared their intention to become such, in a quantity not exceeding 160 acres to any

one person or persons, at the price of \$2.50 an acre. Before formal or approved entries for this land are made, preliminary applications for entry must be filed. Prior to this, the law prohibits conspiracy under heavy penalty and requires the entryman's oath that he is not acquiring the land for another. The law, however, does not require a similar oath at the time of final entry, although the land office regulation does. The defendants were charged with having procured persons under hire, first, to make entries as individual entrymen with the local land officers operating under the General Land Office in the Department of the Interior, for tracts respectively not exceeding the quantity allowed by law; second, to pay to the local officers, with moneys furnished by certain corporations, the price of the land, as fixed by law; third, to secure titles from the government for the lands to themselves as entrymen, and finally to convey titles of the lands to the corporations involved. Judge Lewis quashed the indictment, because, according to his decision, "it begins where the timber and stone land leaves off." As the entrymen were not charged with being hired to make the preliminary applications for entry, "in the absence of any further prohibition, how can we say that it is a criminal fraud for an intending and qualified entryman in his application to contract to sell in future the lands he has made application for with an honest purpose to acquire?" This is equivalent to saying that under existing law, criminal action punishable in the United States Court is involved only if the preliminary application for entry is accompanied by a false oath. No criminal action is involved at the final entry accompanied by a false oath, for the oath is not required by law, but only by the regulation of the executive department. Judge Lewis's decision was supported by a decision of the Supreme Court in the action of the United States against Williamson.

This decision was a severe blow to the government in its prosecution of these frauds. The Department of Justice vigorously dissented from this interpretation of the law, and the case was carried to the Supreme Court. On Dec. 14, the United States Supreme Court reversed the decision of the Federal Court. The lower court, it was held, erred in dismissing the case, and under a recent statute permitting the government to appeal any case where the construction of the law is concerned, the appeal was properly before the court. The judgment of the lower court was reversed with instructions to proceed to trial. Numerous other appeals from similar decisions in the coal land fraud cases in Colorado were pending before the court at the end of the year.

CONVENTIONS AND ELECTIONS. The Republican State Convention was held at Pueblo on April 28th. The convention instructed the delegates to vote for William H. Taft. Resolutions were passed approving Roosevelt's administration. The Democratic State Convention was held at Glenwood Springs on June 16th. The ten delegates chosen were instructed to vote for W. J. Bryan, and a platform eulogizing him was passed. At an election held in Denver on May 20th, Robert W. Speer, Democrat, was re-elected mayor by about 3000 plurality over Horace Phelps, Republican, political results being decidedly mixed. Eleven Democratic aldermen were elected out of sixteen. The Republi-

cans elected a city clerk and treasurer, and had a majority in the Board of Supervisors. In the State Convention contest for nomination to the United States Senate to succeed Henry M. Teller, Charles J. Hughes, a lawyer of Denver, secured 700 of the 750 Democratic delegates, which insured his endorsement for Senator. In the election of Nov. 3, the state vote for the national ticket was as follows. Bryan, 126,772; Taft, 123,732; Chafin, 5,538; Debs, 7,960. For the State ticket, Shafroth, Democratic, received 128,898 votes, and McDonald, Republican, 118,832. The legislature chosen was Democratic, thus insuring the election of Charles J. Hughes as United States senator. The contest in the State was largely on local issues. Denver, which went Democratic by a few thousands elected a Republican sheriff, and district attorney. The State went Democratic for the first time in years.

OTHER EVENTS. Father Leo Heinrichs pastor of St. Elizabeth's Catholic Church at Denver, was shot on Feb. 23 by Giuseppe Alia, an Italian anarchist. Father Heinrichs was shot immediately after he had administered the sacrament to Alia. This murder was alleged to be one of a series projected by bodies of anarchists throughout the country. Alia was found guilty of murder on Mar. 12. On Mar. 28, Bulkeley Wells, formerly Adjutant-General of the State, who had incurred the enmity of the Western Federation of Miners by his harsh opposition measures during the labor troubles in 1904-5, narrowly escaped death in an explosion of a dynamite bomb at Telluride. The bomb was placed under General Wells's bed. The room in which he slept was wrecked and he was hurled many feet from the bed. He escaped severe injury. On April 15th, the Champion coal mine, four miles from Durango was blown up by an explosion, after the receipt of anonymous letters threatening that the mine would be blown up unless discharged miners were reinstated. One man was killed and another severely injured. The damage to the mine was about \$25,000. On Jan. 10th, a contract was signed by which 2,000 men were at once put to work to complete the Moffat Railroad to Steamboat Springs on its way to Salt Lake City. The work was finished late in December. A company was formed with D. C. Dodge, builder of the Rio Grande and Rio Grande Western Railroads, at its head, to complete this enterprise to that point, where it will stop for a year or two. The road when eventually finished will reduce by eight hours the time from Denver to the Pacific coast. It is to tap immediately the Routt county coal fields.

The Democratic National Convention, held in Denver July 9-14, was the first national convention held so far west. The city completed at a public expense of \$650,000 what is declared to be the finest and largest fireproof auditorium in which such a gathering was ever held. The auditorium is a permanent improvement to be devoted to public purposes. It seats about 12,000.

STATE OFFICERS. Governor, John H. Shafroth; Lieutenant-Governor, Stephen R. Fitzgarrald; Secretary of State, James B. Pearce; Treasurer, Wm. J. Galligan; Auditor, Roody Kenahan; Attorney-General, Jno. T. Barnett; Superintendent of Public Instruction, Katherine M. Cook—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Robert W. Steele, Dem.; Justices, John Campbell, Rep.; Luther M. Goddard, Rep.; S. M.

White, Dem.; W. A. Hill, Dem.; M. S. Bailey, Dem.; Wm. H. Gabbert, Rep.; G. W. Musser, Dem.; Clerk, H. G. Clark, Rep.

The legislature of 1909 is composed of 20 Democrats and 15 Republicans in the Senate, and 53 Democrats and 12 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, section *Congress*.

COLORED METHODISTS. The colored Methodists of the United States embraces those in direct affiliation with the Methodist Episcopal Church and those in independent denominations. There were in 1908, 20 conferences of the Methodist-affiliated with the Methodist Episcopal Church. In these conferences were 4,128 local preachers, 2,117 ministers. Conferences are found in nearly all the Southern States and in Liberia, East Central Africa and West Central Africa. The communicants numbered in 1908 about 300,000. A still larger number of Colored Methodists are included in independent denominations. Of these the most important numerically is the African Methodist Episcopal Church, which had in 1908, 850,000 communicants, 6,815 churches, and 6,070 ministers. The African Methodist Episcopal Zion Church, the second in point of numbers, included 578,310 communicants, 3,241 churches and 3,912 ministers. The African Union Methodist Protestant Church is a much smaller body, numbering 4,000 communicants, 125 churches and 200 ministers. The Colored Methodist Episcopal Church, organized by the Methodist Episcopal Church South, numbered in 1907, 220,000 communicants, 2,700 churches and 2,700 ministers. The African Methodist Episcopal Zion Church has a publishing house in Charlotte, S. C., and issues many periodicals. Under its auspices are six colleges and many minor schools.

COLUMBIA, BRITISH. See BRITISH COLUMBIA AND CANADA.

COLUMBIA, DISTRICT OF. See DISTRICT OF COLUMBIA.

COLUMBIA UNIVERSITY. An institution of higher learning in New York City, founded in 1754. The attendance in 1908-9 was 5675 (including 1532 summer session students, but excluding 2879 students in extension teaching). These students were distributed as follows: 645 in Columbia College; 467 in Barnard College; 737 non-professional graduate students; and 2691 professional students in education, applied science, medicine, law, pharmacy, and fine arts. All parts of the United States and 35 foreign countries are represented in the student body. The graduate students represent 321 other colleges and universities. During 1907-8 Columbia received money gifts of \$329,385.39. Teachers College received \$227,123.48, and Barnard College, \$521,425, a total of \$1,077,933.87. Between 1901 and 1908 the several corporations of the University received a total of \$10,286,296.58 in money gifts. The total assets in 1903 were, \$12,084,843.86 in educational equipment, and \$21,696,777.65 in endowment. The library contained 420,000 bound volumes. The total income for 1907-8 (including Barnard College, Teachers College, and the College of Pharmacy) was \$2,367,138.19. The estimated expenditure for 1908-9 was \$1,900,466.79. The increase of \$191,883.85 over the budget of 1905-6 was devoted chiefly to the increasing of salaries of the teaching staff. The teaching and administrative staff of the University numbered 670 persons. Dr.

Nicholas Murray Butler is president. At the commencement of 1908, 956 degrees and diplomas were granted.

For the past two or three years, the University has devoted itself primarily to improving the quality of instruction in all of its fifteen schools. The representative character of the University Council has been emphasized by the election of additional members by the Faculties, and its importance as a body for the consideration of the larger University problems much increased. The establishment, mainly for the benefit of the younger students, of a system of especially qualified advisers has greatly improved the student records in the undergraduate colleges. The professional schools have been strengthened, particularly along the lines of closer contact with present-day professional methods, by important additions to the teaching staff. The work of the non-professional graduate schools, which has grown with great rapidity until Columbia has now by far the greatest number of graduate students in the United States, was being consolidated under the administration of a single dean.

COMETS. See ASTRONOMY.

COMORE ISLANDS. A group of islands, midway between Madagascar and the African coast, a dependency of France. The four principal islands are Mayotte, Grande Comore, Moheli, and Anjouan. Total area, 760 square miles; population, about 85,000, mostly Mohammedans. Sugar cane, the principal product, is worked up in local sugar factories and rum distilleries. Vanilla culture has been much extended, and coffee, tea, cacao, cloves, and rubber are being introduced. In 1906, 71 pounds of cotton were produced. In 1907 the imports and exports were valued at 463,610 and 1,023,397 francs respectively, the trade with France being represented by 207,000 francs of imports and 932,000 francs of exports. The islands are under the Governor of Réunion, who appoints an Administrator for Mayotte, a Resident for Grande Comore, and a Resident for Moheli and Anjouan. Each of the islands has its own budget, the total balancing in 1907 at 629,000 francs. Grande Comore had in 1907 a debt of 844,000 francs.

CONCERTS. See MUSIC.

CONCRETE. There were few departments of structural engineering in 1908 where the use of concrete did not enter to a greater or less extent, and with the increased prices for building materials, especially wood, its use not only had become more general but an ever wider application was being found. Reinforced concrete bridges were increasing at such a rate as to arouse comment, and in the West their use to carry highways was being demanded by the farmers on the ground of decreased outlay for repairs and maintenance. The proposed Henry Hudson Memorial Bridge at Spuyten Duyvil, New York City, the plans of which were published during 1908, has a mammoth arch of 703 feet span of reinforced concrete. The use of concrete for trestle bridges or viaducts was reported both in the United States and Europe, while for small arch bridges, both for railways and highways, concrete was being preferred on the score of economy, strength and durability. On various railway lines, especially in Europe, concrete ties were being used with some success, and various forms were under test, while in the United States the Chicago and Alton had certain sections of its line laid with concrete ties

to which the rails are fastened. As wooden ties are one of the large items of expense of a railway and consume large amounts of timber annually, it was considered that every effort should be made with experiments to find a satisfactory practice that would result in a safer, more economical and more permanent roadbed. On the Philadelphia subway, an improved form of roadbed was employed, where the rails were laid on a concrete foundation formed between longitudinal channel bars. Nor was the use of concrete confined to the roadbed. In an all-steel sleeping car, constructed for the Pullman Company, a concrete floor was used, so that with the single exception of the upholstery the car was entirely incombustible. In 1907, a concrete barge of 150 tons burden, constructed by Signori Gabilleni of Rome, was used on the Tiber and aroused considerable interest. Though heralded as a pioneer, it was found that concrete for boats had been used before both in America and Europe, but it gave rise to a movement for the further application of the idea. Engineers were engaged on the design of barges with a carrying capacity up to 300 tons, for use on the Mississippi and Missouri Rivers. In Italy, some tests were made by the government including a collision between steel and concrete barges in which the latter was the least damaged, and it was stated that the navy was considering the armoring of war vessels with concrete. In actual use, however, in ore carrying vessels on the American Great Lakes were bottoms of concrete in place of wood and they were found eminently satisfactory as they were less injured by the edges of the ore buckets used in unloading the cargo, as well as by the water ballast with which the holds were filled on the return trip up the lakes.

The use of concrete in building operations showed no decrease either in amount or variety. (See ARCHITECTURE.) Several severe fire tests occurred and were successfully met. In one instance a candy factory filled with inflammable material was threatened, but the fire was confined without difficulty to the floor on which it originated. Indeed for factory or warehouse construction reinforced concrete in 1908 seemed to be the favorite material, and many improvements were made by architects and builders in adapting construction to specific purposes. For dwellings and domestic purposes concrete and concrete blocks made headway. Users of concrete demanded that architects should look upon concrete as an original material, and that designs where it was used should take this fact into consideration and not attempt to imitate the treatment of other materials, save of course in cases where concrete was used frankly as imitation stone. Concrete in farm buildings and their adjuncts also attracted much attention and it was found that comfortable, durable and economical buildings could be erected in this way, while for fences, roads and walls as well as for ice houses and refrigerators it possessed numerous advantages. In fact at the stock yards at Chicago not only drinking troughs for the animals, but fences and pens were being made of concrete. Concrete piles continued to be used increasingly in building operations, and improved methods for their formation were being employed. In short, almost everywhere that timber has been used concrete was ready to take its place, and the matter was of importance in view of the denudation of the forests of the United

States, and the great annual loss of life and property by fire, both of which the more general use of concrete would obviate. With the rapid growth of the use of concrete it was but natural to find some instances of the failure of structures, and it was believed to be necessary that adequate knowledge and care should be observed in forming any structure of concrete. A joint committee of American engineers and cement makers and users during 1908 compiled a preliminary report on concrete and reinforced concrete, which was to be submitted to the leading engineering societies and others concerned. This contained rules for the use of the material and aimed to improve and standardize American practice. An International Commission on Concrete met at Bale, Switzerland, in October to make arrangements for the collection of data regarding the use of concrete in various countries, and particularly for the summarizing of the tests and other work of various national laboratories and associations, and for the study of reinforced concrete, taking up the matter along international lines. Its object was not only to endeavor to ascertain and explain differences of opinion and practice but to evolve standards for future tests. See CEMENT.

CONDUITS. The concrete conduit which is used to supply the Spieze hydraulic generating station at Berne, Switzerland, is rectangular in section, being 75 in. by 79 in., in inside dimensions, with 6 in. reinforced concrete walls, and expansion joints. It is carried across the Kander River on a stone arch, and at every 120 ft. in its length has a 6 in. expansion joint. The ends of the abutting portions are faced with 6 in. channels, bolted to the concrete, while a 1/32 in. band of copper, which encircles the expansion space, laps inside the inner flange of the channels, and is fastened to them. Between the copper and the channels is a rubber sheet to prevent the leakage of water which flows under a head of 2½ to 5½ feet. A very long conduit consisting of a 160 mile line, largely of wooden pipe, for the distribution of water along the El Paso & Southern Ry., has recently been installed in New Mexico. The line extends from Carrizozo, New Mexico, 144 miles from El Paso, northeast to Santa Rosa, New Mexico. The pipe has sections varying from 7½ to 16 in. in diameter and is made of Canadian white pine. See WATER SUPPLY.

CONGESTION OF POPULATION. See POPULATION, CONGESTION OF.

CONGO FREE STATE. Formerly an independent State in Africa, under the sovereignty of the King of Belgium, now annexed to Belgium by the Treaty of Oct. 15, 1908 (see *History* below, and also BELGIUM). Area, about 920,000 square miles; population, about 15,500,000. The number of whites on Jan. 1, 1908, was 2943 (1713 Belgians). The capital is Boma, on the Congo River, with about 3300 inhabitants (over 300 whites). Matadi, further inland, on the south bank of the Congo, has 4000 inhabitants (250 whites). The principal port is Banana, at the mouth of the Congo. The soil of the country is divided into native lands, private estates owned by non-natives, and Crown lands. The chief products are rubber, ivory, palm-nuts, palm-oil, coffee, cacao, tobacco, bananas, beans, and some European grains. The exports of rubber in 1904, 1905, and 1906 were 4830, 4861, and 4848 tons respectively. Elephants are

numerous, but their slaughter is now prohibited, and ivory exports are chiefly from earlier accumulations by the natives. At Api, in the Welle district, is an elephant farm with 25 animals. In 1907 the cotton production was 1475 pounds, against 445 in 1906. Iron occurs in many places. Katanga, in the southeast, is the richest mineral-bearing region in the State, containing gold and copper deposits; the latter are believed to be among the richest on the globe. The imports and exports (special trade) in 1907 amounted to 25,182,000 and 58,895,000 francs respectively. The imports are mainly textiles, foods, beverages, machinery, and metal manufactures. The principal exports in 1907 were: Rubber, 43,983,000 francs; ivory, 6,415,000; palm-nuts, 2,089,000; palm-oil, 1,508,000; white copal, 2,038,000; gold, 1,571,000; cacao, 1,053,000. Imports from Belgium in 1907 amounted to 18,026,000 francs; exports to Belgium, 53,824,000. The trade with Great Britain consisted of 2,941,000 francs of imports and 647,000 francs of exports; with Germany, 1,096,000 and 245,000 respectively; France, 849,000 and 38,000; Netherlands, 540,000 and 512,000. The ports of Banana and Boma were visited in 1907 by 578 ships of 547,388 tons. The coasting trade is largely in Dutch vessels. The length of railways is 428 miles. A railway 900 miles long is being constructed to lakes Tanganyika and Albert Nyanza. There is a government steamer service on the Upper Congo. In 1908 negotiations were completed for the construction by the British South Africa Company of a railway from Broken Hill, in Rhodesia, to Mabaya, on the Congo frontier, whence the railroad company of the Lower Congo and Katanga (Belgian) is to continue the line to the Etoile de Congo copper mine, 60 miles, and thence through Kambowe to the copper district of Ruwe, 170 miles further. Meanwhile the railroad company of the Great Lakes is laying tracks around the stretches of rapids in the Congo and placing steamers on the navigable reaches above them. When these two transportation systems will meet in the Ruwe district there will be steam inland communication from Cape Town to the mouth of the Congo.

According to the constitution for the Congo Free State adopted by the Belgian Chamber in August, 1908, the legislative power is exercised by the King through decrees proposed by the Colonial Minister, who is responsible to the Belgian Parliament. (See BELGIUM, *History*.) A Governor-General is at the head of the administration at Boma. The revenue and expenditure for 1906 amounted to 34,623,782 and 28,847,280 francs respectively. For 1908 they were estimated at 35,378,000 and 39,984,923 francs respectively. The revenue largely consists of payments in kind. The public debt in 1906 amounted to 77,432,200 francs.

ARMY, NAVY, ETC. The native armed force consisted in 1908 of about 15,000 men commanded by Belgian officers, including 18 majors, 33 captains, 144 lieutenants and 243 non-commissioned officers. Recruitment is by conscription, the annual contingent being about 3030 men. The term of service is seven years, of which five are spent in the ranks and two in the reserve. Recruits receive their preliminary training in camps of instruction before being drafted into companies. The entire force is organized as independent companies of infantry. There is a sort of second section of the conscription which

is trained not as soldiers, but as artisans for the construction of public works; in 1907 they numbered 2550. There is a marine of 11 steamers on the Lower and 39 on the Upper Congo. The expenditures for army and marine in 1908 were fixed at 5,103,000 and 2,731,000 francs respectively. At the end of 1906 there were 155 stations and hospitals for the treatment of the sleeping sickness; in the budget of 1908, 595,000 francs were assigned to the sanitation service. The Governor-General in 1908 was General Baron Wahis.

HISTORY.

Under the International Congo Conference of 1885 at Berlin and the treaties formed with the Powers pursuant thereto, the Congo Free State secured recognition as a sovereign state under King Leopold II; its neutrality was guaranteed, and provisions were made for free trade in the Congo basin, for the suppression of the slave trade and for the protection of the natives. One of the rules laid down was that the government was required to care for the improvement of the moral and material condition of the natives. In 1889 King Leopold bequeathed all his sovereign rights in the Congo to the State of Belgium after his death, and in the following year, in return for a loan, a convention was formed between him and the Belgian government whereby Belgium gained the right to annex the Congo Free State after a period of ten years. This convention having expired, on June 3, 1901 a bill was passed reassuring Belgium's right of annexation, and, in view of her probable assumption of control, suspending the payment of interest on the moneys loaned by Belgium to the Free State. A treaty of annexation was under discussion during 1907, and in November of that year was ready for submission to Parliament. In 1908 it was the subject of long and acrimonious controversy, but finally, in August, the treaty and a colonial law arranging the basis of the new administration of the Free State were passed by Parliament. For a discussion of the history and criticism of these arrangements see *BELGIUM*, paragraphs on *History*. The present article relates only to the charges brought against the Congo administration and the attitude of King Leopold and his friends toward them.

THE CONGO SCANDALS. Grave charges began to appear in the public prints nearly fifteen years ago, when it was reported by the travelers, missionaries and government officials that the natives were cruelly treated, and deprived of their lands and means of livelihood. From 1895 these reports became more numerous and specific, and by 1897 there was already a large body of accusations in the press from a great variety of witnesses. The Congo atrocities became a common subject of discussion. Gradually it appeared that these charges pointed especially to one cause as the source of evil, namely, the exploitation of native labor in the rubber trade. Thus it seemed that the abuses were not the result of occasional and personal misconduct of the officials, but were involved in the system of administration itself. At length a vast mass of evidence having accumulated, Congo Reform Associations were formed in 1904 in Great Britain and in the United States, aiming definitely at removing the cause of the atrocities by putting an end to the system of enforced labor. The reformers urged governmental interference under the terms of the treaty

of 1885, alleging that King Leopold's administration had violated the rules for the protection and well being of the natives. Influenced by this constant criticism and especially by the appeals of the British government, King Leopold in 1904 appointed a commission of three to investigate the alleged atrocities. Its report was published in November, 1905. While it emphasized the benefits of civilization which had been conferred by King Leopold's government, it admitted in essentials the evil which the reformers had charged. In applying the principle that land not occupied at the time of the foundation of the colony should revert to the state, the administration had prevented the natives from ranging the forests and earning their living, and in fact had reduced their land to so small an area that it was impossible for them to subsist. If they left their villages they were liable to arrest. They could not dispose of the product of the soil except to the degree to which they had disposed of them before the foundation. As they had no means of paying the taxes except by labor, they were required to work for the state. Moreover the state, having no means of improving and developing by itself the vast territory, had been obliged to appeal to private enterprise, and had made concessions to foreign companies, which concessions carried with them in some instances the right to enforce the labor of the blacks. The farmers of the taxes were personally interested in the exploitation of native labor, because they themselves received a proportionate share of the returns. The administration had allowed the employment of a constabulary which aided the concessionary companies in enforcing the labor of the blacks. In the Upper Congo, says the report, the state of affairs was especially bad, owing to this irresponsible constabulary. The state labor taxes, it declared, worked great hardship.

King Leopold denied all charges of cruelty that were brought against the administration. He declared that under his government the condition of the natives had greatly improved, and he pointed to the suppression of the slave trade, of human sacrifice and of cannibalism, the introduction of railways, steamships, telegraphs and even automobiles, the checking of smallpox and the sleeping sickness, the prohibition of alcohol and the reduction of the areas of barbarism by granting monopolies to foreign companies. He appointed a commission to consider the report. In June, 1906, he decreed some reforms including the provision that natives should hold their own lands except as otherwise determined by the state, and that natives under fourteen years cannot contract for labor for more than three years of general service or two years of domestic service; and the declaration that recourse should be had to punitive expeditions only as a last resort.

The reports of British and United States consular officers in 1906 and 1907 showed that the evils sketched in the Commission's report still continued, and were in fact even worse than therein appeared: For example, the report had declared that the state labor tax required forty hours a month, whereas it was said by the United States Consul General that as the result of an investigation made into this matter under the most favorable conditions, he had found that the payment of the state tax required nineteen days and five hours each month, or practically 236 days a year. "The ordinance of July 1, 1885," said he, "declared in part that the vacant lands

were to be regarded as belonging to the state. The vacant lands were considered as all those not actually occupied or under cultivation by the natives; their proprietary rights in and over their own country were ignored." He pointed out that the state, under the guise of taxation, compelled the natives "to contribute for its benefit and that of a number of concessionary companies the natural products of these lands, consisting for the most part in rubber, ivory and gum-copal." The reports of British consuls were even more complete, and were published by the British government in official volumes. These reports formed the basis of representations on the part of the British and American governments to Belgium in 1908. See *BELGIUM*, paragraphs on *History*.

In 1907, the Congo Reform Associations in Great Britain and the United States were both active, protesting that the inhuman treatment of the natives still continued. In Great Britain much dissatisfaction was expressed with the proposals of the Belgian government for settlement, and on Nov. 7, 1907, an appeal to the nation, signed by many prominent men, was published, condemning the terms of the proposed Colonial Law as leaving things practically as they had been before. In 1908 the reformers both in Great Britain and the United States complained that the arrangements concluded in that year (see *BELGIUM*) did not in any way guarantee the removal of abuses. Nowhere in the Colonial Law, the Treaty of Annexation or the Additional Act, was there any clause providing for the restoration to the natives of the lands which they formerly held in common by tribal custom. Nor did these instruments abolish the labor tax. On the contrary it is expressly stated that existing requirements will be retained. Thus, the reformers argued, the new arrangement will perpetuate the worst abuses. Grants to the concessionary companies which were estimated by Sir Edward Grey to cover three-fifths of the country, were recognized under the new arrangement, and all this area would be kept out of native hands. To raise the large sums which would have to be paid by the terms of the new arrangement to Leopold and his successor, the natives would necessarily continue to be exploited. The reformers also complained that the present Congo official staff was retained under this settlement, and thus the same men who were responsible for the abuses would have charge of the execution of the reforms. The assurances of the Belgian government that it would carry out reforms after the annexation was an accomplished fact were not regarded seriously by the critics of the new arrangement. They argued that little was to be expected from the Belgian government unless direct pressure were exerted from outside, because the exploitation of native labor in the rubber industry was too profitable, and too many Belgian subjects were financially interested in Congo enterprises. Enormous profits had come from the rubber trade to Leopold and his co-partners. With the King many of Belgium's most prominent subjects were associated. Any genuine measure of reform would greatly reduce profits and injure large numbers of shareholders. Such important business interests would be damaged by any radical change that the outlook from the reformer's point of view at the close of the year seemed distinctly unfavorable to improvement.

CONGO, FRENCH. See *FRENCH CONGO*.

CONGO REFORM ASSOCIATIONS. See *CONGO FREE STATE*, section *History*.

CONGREGATIONALISM. A term applied to a body of Christian believers, the rise of whose organized church life began with the Puritan movement in England. Independent bodies have existed from the earliest times of Christianity. In the early Congregationalism of the United States, the town became a corporate body, owning property and providing for religious services. This was the parish. The church was a voluntary association of believers under a covenant of faith. The parish still exists, though chiefly in New England. The tendency is toward dissolution of the parish and the incorporation of the church. All Congregational churches now organized are incorporated. The Congregationalists in the United States constitute the eighth largest religious body, having a membership (Dec. 31, 1908) of about 722,000.

Congregationalism finds its unit in the local church. Several churches fellowship with each other in a Conference. The churches of a State are formed into an Association. The highest expression of fellowship is found in the National Council. This body meets once in three years. It is not at all legislative, though the recommendations it makes to the churches are cordially accepted and generally adopted.

The tendency of the churches appears to be in the line of a closer and more practical fellowship. The independent church is found to be a weakness in the system. At the National Council, Cleveland, O., 1907, the report of the Committee on Polity accentuated the importance of a closer federation of the churches. Several States have followed the suggestion embodied in that report. Still, respecting the autonomy of the local church, the idea obtains that there should be a more compact organization in which the various functions of church life shall be centered, on well defined purposes. This is the latest move in Congregationalism, and is likely to become popular.

The educational and missionary work of the churches is carried on under the auspices of the following societies: the American Board of Commissioners for Foreign Missions, the Congregational Home Missionary Society, the American Missionary Association, the Congregational Education Society, the Congregational Sunday School and Publishing Society, and the Congregational Board of Ministerial Aid. All these societies, except the last, which is under the control of the National Council, are representative in their constituencies, although they were at first organized as independent societies. The women of the church are well organized in foreign and home missionary work. There are smaller societies which are distinctively Congregational, such as the Boston Seamen's Friend Society. For fellowship and culture, clubs are organized. There are over fifty such bodies in the several States. Ministers find for themselves mutual help and improvement in Associations. Ministers receive license, in some States from Conferences and in others from Associations. Ordinations and installations are carried out through ecclesiastical Councils, convened by letter missive from the Church by which such services are desired.

The following summaries give the figures for Congregationalism in the United States, Jan. 1, 1908: Churches, 5,977; ministers, 5,966; members, 708,553; Sunday school scholars, 678,620;

families, 526,013. Contributed to foreign missions, \$555,200; home missions, \$511,658; American Missionary Association, \$151,902; Church Building Society, \$109,258; Education Society, \$148,728; Sunday school work, \$61,096; Ministerial Aid, \$31,535; other benevolences added, give a total of \$2,591,660; \$8,986,014 were spent in parish support. Church property (total) was estimated at \$68,776,979. The total amount of salaries paid exceeded \$4,464,128, making an average salary of \$948.

The theological seminaries are: Andover, Cambridge, Mass.; Atlanta, Ga.; Bangor, Me.; Chicago, Ill.; Hartford, Conn.; Oberlin, Ohio; Pacific, Berkeley, Cal.; Yale, New Haven, Conn. Forty colleges exist to-day which were founded by Congregationalists. A few of these colleges are unsectarian and independent, for which cause an advantage is taken of the Carnegie Foundation. These colleges enroll 33,264 students, under 1,869 instructors; include 1,597,183 volumes in their libraries; and hold productive funds to the amount of \$26,738,894.75. The next session of the National Council will be held in Boston, Mass., Oct., 1909. The officers are: Hon. Thomas C. MacMillan, Chicago, Ill., Moderator; Rev. Asher Anderson, D.D., Boston, Mass., Secretary; Rev. Joel S. Ives, Hartford, Conn., Registrar and Treasurer.

CONGREGATIONAL METHODIST CHURCH. A religious denomination founded in Georgia in 1852 by persons who had withdrawn from the Methodist Episcopal Church and wished to form a church with Methodist doctrine, but giving the people a voice in their own government. The chief efforts of the denomination during 1908 were in instructing and developing those already members. A large number of new organizations were also formed and the progress made was more substantial than ever before. The Congregational Methodist Publishing House in Atlanta was organized and it has applied for a charter for a \$25,000 plant at Thomaston, Ga. The Atlanta Bible School is operating in Atlanta a Bible Training School, Interstate College and a Music Institute. The next General Conference of the church will meet at Anniston, Alabama, in Nov., 1909. The church numbered in 1908, 24,000 communicants, 425 churches and 415 ministers.

CONGRESS. See UNITED STATES.

CONGRESSIONAL LIBRARY. See LIBRARY OF CONGRESS.

CONNECTICUT. One of the States of the New England Division of the United States and one of the thirteen original States. Its land area is 4220 square miles and its water surface 145 square miles, making a total area of 4965 square miles. Its population in 1900 was 908,420, and according to the Federal estimate of 1908, the population in that year was 1,038,149. The largest cities, with their population (estimated) in 1906, were as follows: New Haven, 123,000; Hartford, the capital, 93,000; Bridgeport, 85,000.

MINERAL RESOURCES. The only important mineral product of Connecticut is building stone. There are in the State, in the northeast corner, iron deposits which have been worked in recent years but the developments are not important. The value of building stone quarried in 1907 was \$1,052,582, of which the granite quarried was valued at \$591,153 and trap rock at \$459,053. A small amount of limestone was also

produced. The granite produced in 1906 was valued at \$974,024 and the trap rock at \$411,345. The total production of building stone in that year was valued at \$1,386,540. Connecticut ranks fifteenth among the States in the production of building stone. According to figures given by the United States Geological Survey, from whose reports the statistics above are taken, the total value of the mineral production of the State in 1907 was \$3,389,519 as compared with a value in 1906 of \$6,660,288.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the figures of the United States Department of Agriculture, are as follows: Corn, 2,395,000 bushels, valued at \$1,916,000 from 58,000 acres; oats, 359,000 bushels, valued at \$208,000 from 11,000 acres; rye, 85,000 bushels, valued at \$166,000 from 10,000 acres; buckwheat, 55,000 bushels, valued at \$44,000 from 3,000 acres; potatoes, 2,720,000 bushels, valued at \$2,448,000 from 34,000 acres; hay, 588,000 tons, valued at \$9,261,000 from 490,000 acres; tobacco, 23,224,320 pounds, valued at \$3,948,134 from 13,824 acres. Since 1900 there has been a noteworthy increase in the acreage of corn, potatoes and tobacco grown in the State. Only six States exceeded Connecticut in the total value of tobacco raised. The number of farm animals has remained practically constant since 1900 except for a considerable increase in the number of milch cows and sheep, the former numbering 137,000 and the latter, 34,000, Dec. 31, 1908. The estimated value of the wool clip in 1908 was \$44,660.

MANUFACTURES. Manufacturing showed a healthy growth from 1900 to 1905. A comparison of the establishments classed as factories in 1900 and in 1905 showed that in the latter year they numbered 3477, with \$373,283,580 capital, an average of 181,605 wage-earners, and products valued at \$369,082,091, these figures being increases, respectively, of 2.8 per cent., 24.8 per cent., 13.7 per cent., and 17.1 per cent. over the corresponding figures for 1900. The value of the products of leading industries in 1905 were as follows: Brass manufactures, 80 per cent. being rolled brass and copper, \$53,916,445; hardware, \$21,480,652; foundry and machine shop products, \$20,189,384; cotton goods, \$18,239,155; silk and silk goods, \$15,623,693; ammunition, \$15,394,485; rubber boots and shoes, \$12,829,346; woolen goods, \$11,166,965; rubber and elastic goods, \$8,868,353; felt hats, \$8,662,799; plated ware, \$8,125,881; cutlery and edge tools, \$6,167,852; clocks, \$6,158,034; corsets, \$5,590,637; hosiery and knit goods, \$5,371,452; musical instruments, \$5,272,835; iron and steel, \$5,150,675; and paper and wood pulp, \$5,039,147. Other industries with slightly less valuable outputs were the manufacture of electrical apparatus and supplies, printing and publishing, worsted goods, needles and pins, and hooks and eyes. A remarkable feature of Connecticut industries is the preponderance of plants owned by individuals. Thus in 1905 in twenty-one selected industries 50.9 per cent. of the establishments were owned by individuals and 14.1 per cent. by firms, while only 34.3 per cent. were owned by incorporated companies. This feature, however, varied much with the industry. Of the wage-earners, 44,554 were women at least sixteen years of age, and 4,301 were children under sixteen, this latter number being 26 per cent. larger than in 1900. The cities credited with

the largest values of production were: Bridgeport, \$44,586,519; New Haven, \$39,666,118; Waterbury, \$32,367,359; and Hartford, \$25,973,651.

FISHERIES. There were employed in the fisheries of the State in 1908, 882 men. The chief fish taken are shad and lobsters. The number of shad taken in 1908 was 54,878, valued at \$22,736 as compared with 46,433 valued at \$24,176 in 1907. In 1908, 901,977 pounds of lobsters were taken, valued at \$127,359. The value of the boats and apparatus used in the fisheries of the State was \$266,682 as compared with the value of \$182,344 in 1907.

CHARITIES AND CORRECTIONS. The total expense of the State for charitable and correctional institutions and societies in its charge, was, in 1908, \$1,347,749, of which \$973,891 was for maintenance and supervision; and \$373,858 for buildings. In addition to these sums, the cost to the towns for the support and relief of dependents and defectives was more than \$800,000. The amount expended by the State for the maintenance and supervision of charitable and correctional institutions shows a steady and marked advance in recent years, the most notable increase for the years 1907-8 being for the Hospital for the Insane at Norwich, for the Board of Prisoners in county jails, for new and enlarged appropriations to hospitals, for increased aid to anti-tuberculosis work, and for the amount required for the support of State paupers under the new State pauper law of 1907. Additions and improvements have been made to the jails in Hartford, Bridgeport and Norwich. The State Board of Charities recommends that a psychopathic pavilion be added for the treatment of acute cases and early attacks of insanity in the Hospital for the Insane at Middletown and at the Norwich Hospital for the Insane. The total number of insane persons under restraint in the State is about 3,700. At the school for Imbeciles in Lakeville, a new dormitory building has been completed. New hospitals have been erected in Willimantic and New Haven. Excellent work is being accomplished in the treatment of tuberculosis, both at the branch of the Hartford Hospital at Cedar Mountain and at Gaylor Farm Sanatorium in Wallingford. The records of the eight county temporary homes for dependent and neglected children show a slightly smaller number of children committed to the homes, and also a smaller number than usual placed out in family homes or returned to relatives and friends. New buildings have been erected for the New Haven County Home. The operation of the new State pauper law of 1907 has already resulted in a large increase in the number of paupers aided or supported by the State.

EDUCATION. According to the statement of the Secretary of the State Board of Education, the school population (ages 4 to 16 years) in Oct., 1907 was 234,183. The total enrollment in public schools in 1907 was 179,177, and the average daily attendance was 134,602. The high school enrollment was 10,715, practically all the high salary of men teachers was \$108.19, and of women \$47.38. The average length of the school term was 186 days. The total expenditure for public schools was \$4,335,802.86, of which 80.92 per cent. was derived from local taxes, 11.43 per schools having three or four year courses. The teachers in all the schools numbered 4,884, of whom 4,552 were women. The average monthly

cent. from State taxes, and 3.32 per cent. from government funds.

POLITICAL CONVENTIONS AND ELECTIONS. A convention for the nomination of delegates to the Republican National Convention was held at Hartford, May 6th, and instructed the delegates-at-large to vote for Secretary Taft, the first time in the history of the party that instructions were given. Two of the four districts also instructed, and all fourteen of the delegates voted at Chicago for Taft. The platform adopted endorsed the Roosevelt administration and called for tariff revision by its friends. The Republican State Convention was held at New Haven Sept. 9th. George L. Lilley, of Waterbury, congressman-at-large, was nominated for governor, and Frank B. Weeks, of Middletown, for lieutenant governor. Mr. Lilley was a prominent figure in Congress during the winter session of 1908, where he brought charges against the Electric Boat Company, successor to the Holland Submarine Boat Company. These charges were dismissed after a hearing by a Congressional committee. (See CONGRESS.) There was bitter opposition to his nomination, but he had the support of the State organization and received 402 of the 577 votes in convention. The platform approved the administration of President Roosevelt and endorsed the Republican National Platform.

The Democratic State Convention for the selection of delegates to the Democratic National Convention met at New Haven April 20th. In spite of a vigorous attempt on the part of his sympathizers, resolutions endorsing Mr. Bryan for the presidency were defeated. The Democratic State Convention for the nomination of candidate for governor and other State offices met at Hartford Sept. 16th. Judge A. Heaton Robertson, of New Haven, was nominated by acclamation for governor, and Rollin U. Tyler, of Haddam, for lieutenant governor.

In the election of Nov. 3, the votes cast for the national ticket were as follows: Taft, 112,815; Bryan, 68,255; Chafin, 2,380; Debs, 5,113. The vote for governor was: Lilley, Republican, 98,179, Thayer, Democratic, 82,260.

On Dec. 26th, an "election court," provided under the Corrupt Practices Act, assembled to hear charges against Governor-Elect Lilley and his political agent, Colonel Isaac M. Ullman of New Haven. The two judges of the Superior Court, who constituted this tribunal, gave their opinion that the act was unconstitutional in that it disqualified for office-holding any person who was found guilty, while the Constitution provides that no one shall be disqualified except after conviction of an infamous crime in a trial by jury. The proceedings were accordingly dismissed.

OTHER EVENTS. A notable celebration began at Hartford, Oct. 6th, in commemoration of the completion of a stone bridge between Hartford and East Hartford, costing about three million dollars and said to be the finest structure of its kind in the world. The celebration included parades and many beautiful historical pageants. It lasted three days. William F. Walker, the treasurer of the Savings Bank of New Britain, who absconded with about \$350,000 of the funds of the bank in 1907 without, however, affecting the solvency of the institution, was returned to the State on July 24th after a year spent in evading the police authorities. He was finally captured at Ensenada, Mexico. Betts Academy, one of the oldest and best known preparatory

schools in New England, was burned Jan. 22nd at Stamford, with a loss of \$100,000.

STATE OFFICERS. Governor, George L. Lilley; Lieutenant-Governor, Frank B. Weeks; Secretary of State, Matthew H. Rogers; Treasurer, Freeman F. Patten; Comptroller, Thos. D. Bradstreet; Attorney-General, Marcus H. Holcomb; Adjutant-General, George M. Cole; Commissioner of Insurance, Theodore H. Macdonald—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Simeon E. Baldwin, Dem.; Associate Justices, S. O. Prentice, Rep.; F. B. Hall, Rep.; John M. Thayer, Dem.; Alberto T. Roraback, Rep.; Clerk, Geo. A. Conant.

The legislature of 1908 was composed of 26 Republicans and 9 Democrats in the Senate, and 191 Republicans and 64 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, section Congress.

CONSERVATION OF NATIONAL RESOURCES. COMMISSION ON. See AGRICULTURE; FORESTRY; PAPER; SOILS; and article UNITED STATES, paragraph *Internal Waterways and National Resources*

CONSTRUCTION. See ARCHITECTURE.

CONSULAR SERVICE. See UNITED STATES.

CONSUMPTION. See TUBERCULOSIS.

COOPER, SIR ALFRED. An English surgeon, died on Mar. 3, 1908. He was born in Norwich in 1838, was educated at the school of St. Bartholomew's Hospital, in London, became a member of the Royal College of Surgeons of England in 1861, and a fellow of that institution in 1870. He was a surgeon in the Lock Hospital, in London, for several years, and was also on the staff of other hospitals. He was knighted in 1902 for his services for maintaining a hospital in connection with the Prince of Wales's hospital ship during the Boer war.

COÖPERATION. The last few years have witnessed a rapid development of the coöperative movement in central European countries and the United States. The great variety of fields into which coöperative effort was being extended may be indicated by a simple enumeration of a few of the new enterprises of 1908. In New York City coöperative apartment houses reached the number of a full half-dozen; the same idea found expression in Chicago; in Minnesota 100 creameries joined efforts in the coöperative marketing of products; coöperative creameries were established by farmers in various western States; 30 girls in New York City formed a coöperative sewing-shop; a coöperative trolley line began business at Celina, Ohio; certain labor unions in Chicago established a coöperative hospital; a coöperative factory for farm implements was started at Plano, Illinois; a coöperative suburban town near New York City was established; the Inland Coöperative Telephone Association at Pullman, Washington, declared 15 per cent. dividends; numerous coöperative stores were formed in the Mississippi Valley and on the Pacific Slope, and coöperative grain and elevator companies throughout the grain States had a successful year. There was also a considerable development of coöperation among farmers in the grain, tobacco and cotton belts in the marketing of their products.

However, coöperation in the United States was hardly more than local and spasmodic. In

Belgium, France, Germany, Denmark, and the United Kingdom on the other hand coöperation in certain respects has become national and permanently established. In Belgium and France coöperation among farmers, largely inspired and directed by Catholic priests, has become very extensive. In Belgium, where political affairs are determined by the relative strength of Socialists and Catholics, farmers' coöperative societies (*Syndicats Agricoles*) are formed by the latter as a defense against and check upon the former. In southern France, however, the Socialists are carrying on a coöperative association among farmers. In Belgium these societies not only secure immense advantages in the purchase of fertilizers, food-stuffs for cattle, supplies, and implements, but they control dairies and mills and numerous retail stores. They have also engaged in insurance and have attained efficiency in the marketing of products on a large scale. By making available to all peasant farmers of the group scientific knowledge of the value of fertilizers, of intensive cultivation, and of other features of scientific agriculture, they have prevented the exploitation of ignorant farmers on the one hand, and increased the value of land, cattle, horses, and products. Similar results have been achieved in Denmark. Here coöperation by raising the conditions of rural life has checked the flow of population to the towns. In this country there were more than 1200 distributive coöperative societies in 1906; more than one-half the population are in practical union with some form of coöperation. In England this proportion is estimated at about one-fifth, and in Germany, Austria, Belgium, Holland and France at about one-fourth. The report of the 40th Annual Congress of the Coöperative Union of Great Britain, an association in the retail trade, showed a total membership of 2,434,085, an increase of 101,330 during the year. In Sweden there were registered 3162 coöperative societies in 1906; in Finland, 1016; in Hungary, 800 distributive coöperative societies and 1650 credit associations in 1907; in Switzerland, 2138 societies in 1907; and in Germany, 25,714 societies in 1906.

COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART. An institution founded in New York City for free instruction in science and art, by Peter Cooper, and chartered in 1857. The Institute includes the following departments; day school of technical science; night school of science; night school of art; women's art school; school of stenography and type-writing; school of telegraphy; school of elocution; school of oratory and debate, and parliamentary procedure; reading room and library, and the museum for the arts of decoration. The Union has developed so rapidly that it has outgrown its original building in Cooper Square, and a lease has been made of the old 69th Regiment Armory, directly opposite. This building will be altered and remodelled and will be called the Hewitt Addition to Cooper Union, in recognition of the long and invaluable service rendered to the Union by the late Abram Hewitt. The highest attendance reached in the year ending June 4, 1908 was 2,505, distributed as follows: General science course, 667; electrical course, 114; chemical course, 154; night art classes, 1,333; day school, 237. The 49th annual report as submitted June 4, 1908, shows the revenue for the year of \$161,228.30 and ex-

penditures of \$161,390.70, leaving a balance, with the balance of previous years, of \$13,714.98 to the credit of the institution. The endowment to the institution in 1908 was \$2,797,727.67. The interest on the general endowment was \$79,421.16. The income of the endowment made by Edward Cooper, Mrs. Abram S. Hewitt and their children amounted to \$36,605.29. The income on the endowment of \$600,000 made by Andrew Carnegie was \$30,000. During the year donations were made to the museum for the arts of decoration to the amount of \$3,124.21. During the year 578,582 persons visited the library and reading room, and the visitors to the museum for the arts of decoration numbered 6,284. Lectures are carried on in the great hall of the Institute in connection with Columbia University, the Board of Education, and the People's Institute. The officers of the Union in 1908 were: President, John E. Parsons; Secretary, R. Fulton Cutting; Treasurer, Edward R. Hewitt.

COPPÉE, FRANÇOIS EDOUARD JOACHIM. French poet, playwright and novelist, called the "poet of the people," died on May 23, 1908. He was born in Paris, on Jan. 12, 1842. For a time he was a clerk in the War Department (where his father was employed); then for several years he was assistant librarian of the French Senate (a sinecure which he obtained largely through the influence of the Princess Mathilde, and which permitted him to devote himself to literary work); and he was archivist of the Comédie Française from 1878 until 1884, when he resigned upon being elected to the French Academy. In 1888 he was made an officer of the Legion of Honor.

In his boyhood, Coppée had written verse of much merit, and he continued to write during his clerkship. Definite recognition of his literary ability came in 1866 through his contribution in that year to the volume of poems published by the "Parnassians," and his reputation was further enhanced, in the popular estimation, at least, by published collections of his verses entitled *Le reliquaire* (1866), *Les intimités* (1868) and *Poèmes modernes* (1869), from the last named of which two poems in particular, "La Bénédiction" and "La Grève des forgerons," became known throughout France. But his real fame was assured when his little romantic play *Le passant* was presented at the Odéon, on the night of Jan. 14, 1869. Paris went into raptures over this versified drama in one act, lasting less than half an hour, and in it Bernhardt found the material for one of her most artistic impersonations. His *Deux douleurs*, played at the Théâtre Française in 1870, had only qualified success, and his *L'abandonnée*, presented in 1871, was somewhat coldly received; but his *Fais ce que dois* (Odéon, 1871), a dramatic episode in one act, had a vein of dignified patriotism which appealed strongly to the French in their then humiliation, and aroused enthusiasm little less general and genuine than that which had greeted *Le passant*. *Les bijoux de la délivrance* (1872), was also very cordially received, while *Le Luthier de Cremona* (1876) was pronounced worthy to be classed with *Le passant*. With D'Artois he also wrote at about this time the four-act play, *Le petit marquis*, and *La guerre de cent ans* (1878), a drama in five acts. His other plays include *Le trésor*, a comedy in one act, in verse (1880); *Madame de Maintenon*, an ambitious five-act drama, in verse (1881);

Severo Torelli, also a five-act drama, in verse (1883); *Les Jacobites* (1885); *Le pater* (1895), with the Commune as its theme, and suppressed by the government as incendiary, after its third performance, and *Pour la couronne* (1895). The last named dealt with the struggle of the Bulgarians to free themselves from the Turks. Forbes Robertson and Mrs. Patrick Campbell played in London with considerable success a translation of this piece, but a similar production in the United States did not succeed.

Coppée's prose works include such novels as *Le pendant le siège* (1874); *Henriette* (1889); *Rivales* (1893); *Le coupable* (1897), and *Les vrais riches* (1898); besides the very popular short stories, *Contes en prose* (1882); *Vingt contes nouveaux* (1883), and *Contes rapides* (1889). It was said, and truly, of Coppée, that he was able to "please both the Academicians and the people," and though certain of the critics disparaged as "mediocre" his simple verses, dealing with homely life, and the less complex emotions, it seems clear that the most lasting things he did are these expressions, by reason of which he has been called the "creator for the French of *genre* poetry." In the *Annales*, Paul Bourget said of him that "of all contemporary poets he was the only one who was wholly and inimitably French," and that "his work was natural, just, precise and perfectly finished." In strange contrast with his essential gentleness was his bitter and aggressive participation in the persecution of Captain Dreyfus. In 1898 Coppée became a devout Roman Catholic, and his book *La bonne souffrance* expresses his attitude toward that religion.

COPPER. The copper industry of the United States during the year 1908 experienced a gradual recovery from the severe depression suffered in the last part of 1907. Many producers who had greatly curtailed or even suspended production in that year began again to increase output practically at the opening of 1908, and in spite of the low price of the metal, nearly all of the important producers of 1907 were in operation throughout most of 1908, and a few new companies began production during the year. The rate of production steadily increased and at the close of the year was greater than at any other time in the history of the industry.

The production of blister and Lake copper in 1908 from ores mined in the United States, according to returns and careful estimates of the United States Geological Survey, was greater by about 50,000,000 pounds, or between 5 and 6 per cent., than that in 1907, which was 868,996,491 pounds. Arizona and Montana, ranking in the order named as in 1907, showed large gains over that year, but Michigan showed little change from 1907. The production of total refined new copper, it was thought, would hardly equal the output of 1907, which was 1,032,516,247 pounds. In Mexico the production of copper for 1908 was estimated by the *Engineering and Mining Journal* at 84,159,000 pounds as compared with 126,710,000 in 1907. Boleo was the largest producer in 1908, being followed next by Aguascalientes, and then by Cananea, where new concentrators and a new smelting plant had been constructed. In Canada 53,494,202 pounds of copper were produced as compared with 46,356,382 pounds in 1907.

Stocks of refined copper were undoubtedly very large, and domestic consumption of new copper showed a decline from the 485,000,000

UNITED STATES COPPER PRODUCTION AND SUPPLY, 1903-8.

	1903 (b)	1904 (b)	1905 (b)	1906 (b)	1907 (b)	1908 (c)
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Alaska	(a)	2,043,586	4,703,609	8,700,000	6,610,680	5,311,600
Arizona	153,591,417	191,602,958	222,866,020	263,200,000	256,866,761	288,885,644
California	19,113,861	29,974,154	16,697,486	24,421,000	34,398,823	37,529,007
Colorado	7,809,920	9,401,913	9,854,174	9,565,000	13,344,118	15,042,312
Idaho	(a)	5,422,007	6,500,000	9,493,000	11,471,101	9,125,797
Michigan	192,299,485	208,329,248	218,999,759	224,071,000	220,317,041	221,500,000
Montana	272,555,854	298,314,804	319,179,880	299,850,000	226,290,873	255,446,447
Nevada	(a)	(a)	(a)	(a)	1,462,450	11,362,638
New Mexico	(a)	5,368,666	5,638,843	6,262,000	8,652,873	5,737,505
Utah	38,302,602	47,062,889	51,950,782	49,712,000	68,333,115	75,298,906
Wyoming	(a)	3,565,629	2,393,201	146,000	2,919,137	2,551,468
Southern and Eastern States (d)	13,855,612	15,211,086	14,907,982	18,821,000	22,408,696	20,182,328
Other States (e)	10,846,477	1,418,065	1,550,000	3,379,000	6,166,098	4,421,825
Total Production	708,375,228	817,715,005	875,241,741	917,620,000	879,241,766	952,395,477
Stock Jan. 1	162,935,439	230,111,792	208,376,672	132,587,496	9,000,000	120,000,000
Imports	167,161,720	182,292,205	210,724,685	225,593,281	253,523,682	212,000,000
Total Supply	1,038,472,387	1,230,119,002	1,294,343,098	1,275,800,777	1,166,747,890	1,225,000,000
Deduct Exports	312,822,627	555,638,552	548,772,403	467,839,041	508,929,401	664,000,000
Deduct Consumption	495,537,968	466,103,778	612,983,199	668,576,336	537,818,489	(g)
Stock Dec. 31	230,111,792	208,376,672	132,587,406	139,385,400	120,000,000	(f) 122,357,266

(a) Included in other States. (b) *Mineral Industry*, Vol. XVI. (c) Estimates *Engineering and Mining Journal*, Jan. 9, 1909.

(d) Includes Vermont, New Hampshire, Pennsylvania, Virginia, North Carolina, Alabama and Tennessee. (e) Includes Washington, Oregon, South Dakota, Texas, and the production of the lead desilverizers and others which it is impossible to distribute according to place of origin. (f) Report of the Copper Producers' Association of Marketable Copper. (g) No reliable statistics available.

pounds of 1907. The average quoted price of electrolytic copper at New York for 1908 was 13.20 cents. The price at the close of the year was 14.18 cents. The average for Lake was 13.424 cents and the price at the end of the year was 14.25 cents. In 1907 the average prices were 20.04 for electrolytic and 20.661 for Lake.

PRODUCTION OF COPPER IN THE UNITED STATES, ARRANGED BY GROUPS OF PRODUCERS

(Estimates by *Engineering and Mining Journal*)

Group	1907	1908
Michigan mines	220,317,041	221,500,000
Smelters in Arizona and Texas	262,597,624	293,365,977
Smelters in Montana and Wyoming	229,362,164	258,102,000
Smelters in Utah and Nevada	90,100,052	81,051,799
Smelters on Pacific Coast (a)	21,936,026	40,698,720
Smelters in Mississippi Valley	24,062,560	24,019,355
Smelters on Atlantic Coast (a)	13,640,930	15,190,847
Smelters in Tennessee	14,784,379	14,750,000
Miscellaneous (b)	2,441,000	3,716,779
Totals	879,241,766	952,395,477

(a) These statistics do not measure the relative importance of these groups of smelters which produce much copper from foreign ore. (b) Includes exports of ore and matte and copper produced by lead desilverizers.

The exports of copper from the United States in 1908 amounted to 661,876,127 pounds of metallic copper in the form of pigs, ingots, bars, plates, etc., as compared with 508,929,401 pounds in 1907. The exports of ore, matte, and regulus amounted to 63,149 tons in 1908 as against 99,141 tons in 1907. The total value of the exports in 1908 exclusive of ore amounted to \$96,555,503 as against \$100,800,355 in 1907. Germany and Holland were the best customers for American copper and were fol-

lowed by France and Great Britain. The imports of copper during the calendar year 1908 amounted to 162,224,144 pounds as against 192,901,267 pounds in 1907. In 1908 the receipts from Europe and Mexico and from South America, with the single exception of Peru, decreased considerably, but Peru increased its exports to the United States from 14,945,697 pounds in 1907 to 23,646,921 pounds in 1908. As regards the import of copper ores, much of this material is sent to the United States for refining and preparation in a final marketable form. The total exports and net imports for the two years are stated as follows:

	1907. Pounds	1908. Pounds	Changes Pounds
Exports	424,257,901	675,508,427	I. 251,250,526
Net Imports	251,624,499	217,986,546	D. 33,637,953
Excess, exports	172,633,402	457,521,881	I. 284,888,479

There were, in addition, manufactures of copper in 1908 not figuring in the above classification, amounting to \$3,162,303 as compared with \$5,888,170 in 1907.

CORINTH, EXCAVATIONS IN. See **ARCHÆOLOGY.**

CORN. Weather conditions during the spring of 1908 in parts of the corn belt in the United States were unfavorable and made the outlook for a good crop rather unpromising. Continued rains in May not only delayed planting but left the fields in a weedy condition while at the same time the period for cultivation was reduced by the approach of other farm work. In parts of the river bottoms of the Ohio, the Mississippi, and the Missouri and in sections westward to Kansas planting was delayed until June and even as late as the latter part of that month. The untoward weather conditions of the early season caused an irregular and uneven stand and a poor and shallow root development which was plainly shown when

later in the summer the wet weather was followed by a hot and dry period. In the eastern part of the country where the planting season had not been so unfavorable the summer drouth was quite injurious. There was, however, enough good weather during the entire season and the first fall frosts were delayed long enough to mature a remarkably good yield of corn.

The total production in 1908 for the United States, as reported by the Department of Agriculture, was 2,668,651,000 bushels. This yield was grown on 101,788,000 acres, making an average for the year of 26.2 bushels per acre. The total yield of 1908 was exceeded only twice in the United States, in 1905 when 2,707,993,500 bushels were produced and in 1906 when the total crop amounted to 2,927,416,000 bushels. In the valuation of the crop the reduction in yield was readily offset by the exceptionally high price, which was 60.6 cents on December 1, 1908. This price was exceeded only once, in 1881 when corn on December 1 was worth 63.6

cents per bushel. In 1901 when there was produced only two-thirds of the ordinary crop, the farm price per bushel on that date was 60.5 cents. The total farm value of the crop on December 1, 1908, was \$1,616,145,000 and was by far the highest ever reached, being about \$280,000,000 greater than the total value of the crop of 1907 which ranks next. In acreage 1908 also held the record, the area being greater by 1,857,000 acres than that of the previous year which stood second in this regard. According to the *American Agriculturist* this was the largest area ever devoted to a single crop in any country of the world. The American corn field was greater than the total area of many important countries. It was almost as large as Germany and produced seven-eighths of the world's crop.

The production, acreage, etc., of the principal corn growing States for 1908 as given by the Department of Agriculture are shown in the following table:

State	Acreage	Yield per Acre (Bu'ls)	Production (Bushels)	Price per Bushel Dec. 1 (Cts)	Total Value (Dollars)
Illinois	9,450,000	31.6	298,620,000	57	170,213,000
Iowa	9,068,000	31.7	287,456,000	52	149,477,000
Nebraska	7,621,000	27.0	206,767,000	51	104,941,000
Missouri	7,542,000	27.0	203,634,000	57	116,071,000
Texas	7,854,000	25.7	201,848,000	59	119,090,000
Kansas	7,100,000	22.0	156,200,000	55	85,910,000
Indiana	4,549,000	30.3	137,835,000	60	82,701,000
Ohio	3,550,000	38.5	136,675,000	63	86,105,000
Oklahoma	4,929,000	24.8	122,239,000	51	62,342,000
Totals	61,663,000		1,750,274,000		976,850,000

It is seen that these 9 States contained about 60 per cent. of the acreage of the entire country and produced about 65 per cent. of the total crop.

Statistics of the Department of Agriculture show that during the 10 months ending October 31, 1908, the United States exported 27,971,574 bushels of corn as compared with 74,524,866 bushels for the corresponding period in 1907. It is estimated that for the fiscal year ending June 30, 1908, the exports were 32,000,000 bushels less than in 1907. This was mostly due to the high price of corn.

The efforts to improve the corn crop and to increase the average acre yield put forth in 1908 were no less vigorous than in 1907 and other previous seasons. This is preëminently an age for breeding field crops and it is of interest to note that the Illinois Experiment Station starting with a variety of average composition has been able by selection and breeding, in 10 generations, to increase the average protein content from 10.92 to 14.26 per cent.; to decrease the average protein content from 10.92 to 8.64 per cent.; to increase the average oil content from 4.70 to 7.37 per cent., and to decrease the average oil content from 4.70 to 2.66 per cent.

The second national corn exposition, held at Omaha, December 9 to 19, was reported as a greater success than the first one held at Chicago in 1907. About 44,000 ears of corn were displayed, but the exhibits were not limited to

corn alone, wheat, oats, rye, barley, millet, alfalfa, and clover also being shown. About 100,000 persons attended the exposition, and prizes amounting to \$54,000 in cash and merchandise were offered. The entries numbered 7731 and represented 28 States. Mexico exhibited the different types of corn produced in its territory. Johnson County, Ind., showed the grand champion single ear and also the grand champion 10-ear lot which were sold at auction at the close of the exposition for \$75 and \$280 respectively. The prize for largest acre yield went to N. Howard Brewer, of Hockanum, Conn., who grew 133 bushels per acre.

CORN EXPOSITION. See AGRICULTURE.

CORNELL UNIVERSITY. An institution of higher learning, founded in 1865 at Ithaca, N. Y. The total number of students for the year ending September, 1908, was 4465, of whom 3734 were regularly enrolled students during the academic year from September to June, and the rest attendants at the summer session and the winter school in agriculture. The enrollment in the fall of 1908 was 4999, of whom 3888 were enrolled in the regular courses for the academic year. The distribution in 1908-9 was as follows: Graduate Department, 246; College of Arts and Sciences, 223; Medical College, 207; State College of Agriculture, 394; State College of Veterinary Medicine, 91; College of Architecture, 130; College of Civil En-

gineering, 569; Sibley College of Mechanical Engineering, 1158. The faculty numbered 566. The number of students from New York State numbered 2052. Nearly every State in the Union was represented, as were the Philippines, Hawaii, and Porto Rico. Students were drawn from 32 foreign countries. Nearly fifty acres of land were acquired in 1908 as an extension of the campus proper on the southeast, thus making the entire area now, including the campus, 350 acres. The productive fund of the University on August 1, 1908, amounted to \$8,628,370, while the inventoried value of the University grounds and buildings was \$4,263,405. The total income from all sources for the year amounted to \$1,356,498. The library contains over 353,000 volumes, and more than 53,000 pamphlets. Revised entrance requirements went into effect at the beginning of the college year 1908.

COSTA RICA. A republic of Central America. Area, 18,691 square miles. On December 31, 1907, the population was estimated at 351,176. In 1906 there were 8795 immigrants and 6528 emigrants; in 1907, 12,895 immigrants and 8510 emigrants. The births and deaths in 1906 numbered 14,208 and 8346; in 1907, 14,762 and 8861. The principal cities are: San José, the capital, 26,682 inhabitants; Cartago, 10,000; Port Limon, 8000; Heredia, 8000; Alajuela, 6000; Puntarenas, 5000.

EDUCATION. Elementary education is free and compulsory. The elementary schools are maintained by local school councils, but the teachers are paid by the national government. In September, 1908, a law was passed establishing a national fund for the maintenance of primary schools out of a tax on alcohol and liquors. In 1905 there were 386 elementary schools, with 991 teachers, 22,274 enrolled pupils, and 17,985 average attendance. The study of English is compulsory in all schools. At San José, Cartago, Alajuela, and Heredia there are lyceums or colleges. For professional instruction there are schools of medicine, pharmacy, dentistry, and law.

PRODUCTION. Coffee of the highest grade is especially cultivated on the Pacific slope, in the departments of San José, Alajuela, and Cartago. In 1905, 74,625 acres were under coffee. Its cultivation has not been increasing in recent years, owing to the competition of the cheaper grades of other countries. From October 1, 1906, to September 30, 1907, the export of coffee amounted to 17,325 metric tons, valued at \$3,419,000. Banana cultivation is rapidly extending. The United Fruit Company, an American corporation, owns 150,000 acres of banana land, of which over 22,000 acres are under cultivation. In 1907 there were exported 10,165,759 bunches of bananas, valued at \$4,864,000. Cacao culture is increasing. Small plantations of rubber in the plains of Serapiquí and San Carlos have proven successful. Cultivated pastures occupy about 311,000 acres, and natural pastures about 342,000 acres. The number of cattle is 308,000; hogs, 80,000; horses, 52,000; mules, 3000. The greater part of the country, held in large tracts under ancient grants, is unoccupied. Some rich gold mines are being worked on the Pacific side; the export of gold and silver bullion in 1907 amounted to \$535,000.

FOREIGN COMMERCE. In 1907 imports of merchandise were valued at 16,731,066 colones (1 colon equals 46.5 cents), and exports of

merchandise at 19,550,105 colones. The principal imports were textiles, foods and provisions, and cattle. The leading exports were bananas, 10,166,551 colones; coffee, 7,147,544 colones; gold in bars, 1,118,399; woods, 472,389; hides and skins, 168,739; gums, 166,630; cacao, 147,369; and the remainder, silver, rubber, tortoise shell, and mother-of-pearl. About one-half the total trade is with the United States, one-fourth with Great Britain, and the remainder with Germany, France, etc.

COMMUNICATIONS. The total length of railways in 1907 was 395 miles. In August, 1908, the government concluded a contract for the completion of the Pacific Railway between San José and Puntarenas. The section is about 12 miles long, and was to be completed in 15 months. This will establish communication between Port Limon, on the Atlantic, and Puntarenas, on the Pacific, via San José. The length of telegraph wires in 1907 was 1207 miles. In 1907 Port Limon was entered by 609 vessels, of 909,008 tons, and cleared by 610 vessels, of 915,988 tons. Puntarenas was entered by 102 vessels, of 210,962 tons.

FINANCE, ETC. During the year ending March 31, 1908, the revenues amounted to 7,916,474 colones (of 46.5 cents each), and the expenditures, 9,191,449. The deficit was occasioned by extraordinary expenditures on railways, public buildings, and the establishment of the liquor monopoly. For 1908-9 the revenues were estimated at 7,535,000 colones, and the expenditures at 7,359,003. The principal sources of revenue for 1908-9 were estimated as follows: Customs, 4,650,000; liquors, 1,850,000; Pacific Railway, 300,000; posts and telegraphs, 300,000. The foreign debt on March 31, 1907, amounted to 11,690,925 gold pesos (1 gold peso equals 2.15 colones); the internal debt, 9,752,685 colones. The maximum of the peace army is 1000 infantry and artillery. The navy consists of one torpedo-boat and one gunboat. The country is divided into 26 sanitary districts, in charge of medical men paid from the national treasury. The President in 1908 was Cleto Gonzalez Viquez, whose term is May 8, 1906-1910.

HISTORY. At the opening of Congress on May 1, 1908, President Viquez reported on the condition of the republic during the preceding year. He emphasized the friendly relations with foreign powers, and announced that the treaties and conferences resulting from the Peace Conference at Washington had been subsequently confirmed by the government. Cartago was chosen as the city of the first Central American Court of Justice. In January, 1908, the presidents of Costa Rica and Nicaragua conferred, and measures for the common benefit of the two states were agreed upon. A convention for the exchange of parcels by post was concluded with Chile and became operative on July 1, 1908.

COTTON. The cotton crop of the United States for 1908-9 was one of the three largest in the history of the country and in value it was estimated that it would rank next to the highest. On December 31, 1908, the Bureau of the Census reported 27,386 gins in active operation and there had been ginned to that date 12,470,226 running bales as compared with 9,951,505 bales on the same date the year before. The crop of 1907 was 11,325,882 running bales, equivalent to 11,107,179 bales of 500 lbs. each. The estimate of the U. S. Department of Agri-

culture made in December, 1908, was 12,920,000 bales of 500 lbs. each. The report of the Census Bureau would indicate a somewhat larger crop than the estimate of the Department of Agriculture, but it was possible that the record breaking return of ginned cotton might be due in part at least to the unusually favorable autumn weather throughout the cotton region, enabling planters to pick and gin their crop earlier than usual.

The estimated production of cotton by States was as follows:

ESTIMATED YIELD OF COTTON IN 1908-9
IN 500 POUND BALES

State	Production
	Bales
Virginia	13,000
North Carolina	619,000
South Carolina	1,118,000
Georgia	1,844,000
Florida	61,000
Alabama	1,273,000
Mississippi	1,560,000
Louisiana	472,000
Texas	3,917,000
Arkansas	1,009,000
Tennessee	340,000
Missouri	54,000
Oklahoma	640,000
United States	12,920,000

This estimate did not include linters. The crop of 1907-8 was made up of 11,070,200 running bales of upland, 86,895 bales of sea island cotton, and 268,060 bales of linters. The total crop for the years 1903 to 1907, including linters and counting round bales as half bales, were as follows:

COTTON PRODUCTION OF THE UNITED STATES
1903-1907

Year	Bales
1903	10,400,825
1904	13,845,385
1905	10,865,520
1906	13,439,374
1907	11,425,156

This cotton was practically produced in 16 States and Territories, the States ranking in 1907 as follows:

COTTON PRODUCTION BY STATES, 1907

State	Rank	Number of running bales
Texas	1	2,308,376
Georgia	2	1,903,016
Mississippi	3	1,481,986
South Carolina	4	1,186,672
Alabama	5	1,142,212
Oklahoma	6	891,850
Arkansas	7	773,461
Louisiana	8	699,119
North Carolina	9	652,930
Tennessee	10	277,445
Florida	11	57,736
Missouri	12	35,997
Virginia	13	9,602
Kentucky	14	4,273
New Mexico	15	447
Kansas	16	34

The sea island cotton crop for 1907 was produced in 49 counties of Georgia, Florida, and South Carolina. The crop and its production by States for the past five years in running bales was:

SEA ISLAND COTTON CROP, 1903 TO 1907

Growth year	Total crop	Georgia	Florida	South Carolina
	Bales	Bales	Bales	Bales
1903	75,393	36,612	27,840	9,941
1904	104,317	53,112	39,619	11,586
1905	112,539	58,311	41,531	12,697
1906	57,550	25,484	23,995	8,071
1907	86,895	44,713	28,935	13,247

From the above table it will be seen that the production of sea island cotton in Georgia and Florida both exceeded that of South Carolina, but in length and fineness of lint the crop of South Carolina surpassed that of all other regions. Attempts were made to grow sea island cotton in other States with indifferent success, and since 1899 no sea island cotton had been reported as produced in the United States except in the States mentioned.

The world's production of cotton for mill consumption in 1907, the latest crop for which data are available, was 16,512,185 bales of 500 lbs. each. The production of each of the leading countries is shown in the accompanying table adapted from U. S. Census Bureau, *Bulletin* 95.

WORLD'S PRODUCTION OF COTTON FOR
MILL CONSUMPTION IN 1907

Country	Production 500 lb. bales	Per cent. of total production
United States	10,882,385	65.9
British India	2,444,800	14.8
Egypt	1,296,000	7.8
Russia	620,000	3.8
China	428,000	2.6
Brazil	370,000	2.2
Mexico	85,000	0.5
Peru	55,000	0.3
Turkey	80,000	0.5
Persia	51,000	0.3
Other countries	200,000	1.3
Total	16,512,185	100.0

The expected crop for the United States in 1908 has already been stated. In British India, where, next to the United States, the largest proportion of the world's supply of cotton is produced, there was a reduction of 2,157,000 acres in the area planted in 1908, but an increase of about 500,000 bales in the crop was reported. While cotton is quite generally grown in India, the record of half a century shows no very great increase in her exports and it was recognized as having the lowest yield per acre of any of the cotton-producing countries, the average yield per acre for the past 10 years being only 80 pounds of lint. The third great cotton-producing country is Egypt, where the production has gradually increased until by 1908 about 1,250,000 bales were produced annually. The construction of the great irrigation works was expected greatly to increase the cotton production, but no

marked increase had been reported nor is the production liable to materially increase, according to a French authority. It was claimed that the new system of irrigation caused a rise of saline deposits in the soil, which were formerly washed out by the annual floods, that on account of the other crops water could not be given cotton when most needed, and that on account of a scarcity of work animals and implements it probably would be impossible to greatly increase the cotton production of Egypt over the present yield of 382 pounds per acre.

The other cotton-producing countries did not appear to be increasing their acreage or yield to any considerable extent. Efforts were made within the past few years to foster the production of cotton in the British, French, and German colonies, particularly the colonies in Africa. The British Cotton Growing Association was especially active in this regard, and largely under its auspices 26,000 bales of cotton were produced in 1907 as follows: British West Africa, 12,200 bales; East Africa, 5000 bales; Sind, 1800 bales; West Indies, 6500 bales; and elsewhere, 500 bales. The amounts thus far produced in the French and German colonies have been very insignificant.

In addition to its being a great producer and exporter of cotton, the United States imported from Egypt 122,170 bales and from Peru 5917 bales of cotton during the year ended August 31, 1908. These cottons were imported for special purposes, the Egyptian for thread and the finer classes of goods, and that from Peru was almost wholly used to mix with wool.

CONSUMPTION OF COTTON IN THE UNITED STATES. The mills of the United States manufacture about one-third of the cotton grown here. On August 31, 1908, there were 1941 establishments in the United States engaged in spinning raw cotton, the total number of active spindles at that time being 27,505,422 with 15 mills and 54,312 spindles that had been idle throughout the year. There were also 404,653 idle spindles in mills which consumed some cotton but were not wholly classed as cotton mills. The active spindles consumed during the year 4,493,028 bales of 500 pounds each, 4,343,440 being domestic cotton and 149,628 bales of foreign cotton. The increase in mills during the year was 111 and of spindles 1,024,972. There was, however, a reduction of 481,171 bales in the amount of cotton consumed, indicating that the conditions during the year were unfavorable to cotton manufacturing in the United States. Of the total of 27,505,442 active spindles engaged in spinning cotton in 1908, 10,200,903 were located in the cotton-producing States. The number of mills and spindles in operation in the cotton States in 1907 and 1908 were:

	1907		1908	
	Mills	Spindles	Mills	Spindles
Alabama	74	876,944	71	934,642
Arkansas	7	12,972	10	13,700
Georgia	149	1,610,004	154	1,757,686
Louisiana	14	68,724	16	69,552
Mississippi	26	162,696	28	171,720
North Carolina..	276	2,604,444	293	2,861,446
South Carolina..	145	3,502,036	150	3,617,358
Tennessee	45	230,358	51	249,604
Texas	52	103,992	55	103,423
Virginia	29	250,758	30	295,579
Missouri and Oklahoma	47	17,272	49	33,488

If these data are compared with those for 1890, the growth of cotton manufacturing in the South is seen to be very great. In 1890 there were in the cotton-growing States 1,570,288 spindles out of 10,653,435 for the entire country. In 1900 the number was 4,367,688 out of a total of 14,384,180, and in 1908 the number had increased to 10,200,903 out of 27,505,422, or the proportion of spindles in the cotton States as compared with the total for the United States was 15 per cent. in 1890, 30 per cent. in 1900, and 37 per cent. in 1908.

COTTON-SEED PRODUCTS. Cotton seed and cotton-seed products are very important factors in the cotton production of the United States, and the utilization of these products was developing rapidly also in India, Egypt, and elsewhere. Of the by-products of cotton production the oil is perhaps the most important. In 1907 there were 786 cotton-seed oil mills in the United States that expended \$7,899,000 in salaries and wages and produced products valued at \$96,407,000 as follows: Oil, 103,049,820 gallons; meal and cake, 1,043,080 tons; hulls, 926,705 tons; and linters, 128,243,639 pounds, the meal and cake being used for stock feed and fertilizer, the hulls as feed and paper stock, the linters for felt, cotton batting, etc., and the oil for the manufacture of oleomargarine, compound lard, for culinary purposes, soap making, etc. The value of the exports of cotton-seed oil in 1907 amounted to \$17,074,403, of which Austria, France, Germany, Great Britain, and Mexico took the greater portion. The exports of cotton-seed cake and meal in 1907 were 670,484 tons, valued at \$17,062,594, Denmark and Germany taking by far the greatest amount, using it largely for feeding dairy cows.

WORK OF THE U. S. DEPARTMENT OF AGRICULTURE ON COTTON. During the first session of the 60th Congress provision was made for the establishment by the Secretary of Agriculture of standards for the different grades of cotton, which were to be the official standards for the classification of cotton. The Department of Agriculture had given much consideration to this subject and it was believed a basis for such a classification had been established. A board of cotton experts was appointed to assist in the final determination of the standards which by law are to be designated as middling fair, strict good middling, good middling, strict middling, middling, strict low middling, low middling, strict good ordinary, and good ordinary. Studies were also being made in the baling of American cotton, and it was hoped they will lead to an improvement in the methods of baling that are now the cause of immense losses.

Successful investigations were being conducted in Arizona and southeastern California in the introduction and acclimatization of Egyptian cottons. The results up to 1908 showed the possibility of producing a fibre of satisfactory length, strength, and fineness, and the experimental tracts gave very high yields. The Department was carrying on extensive experiments on the improvement of varieties of cotton and of the methods of cotton culture. These included the introduction of new species and varieties that possessed some desirable qualities and their use in breeding new varieties, breeding for resistance to disease, early maturity as a means of circumventing the boll weevil, etc.

BOLL WEEVIL. Much attention was being paid to the boll weevil and some progress in its control was to be noted. This pest was in-

troduced into Texas from Mexico about 1892 and it spread to the north and east at the average rate of about 50 miles per year. At the close of 1908 it had reached the Canadian River in Oklahoma and Arkansas on the north and Louisiana and Mississippi on the east. Its spread was checked somewhat by hot dry summers and favored by cool moist ones. It was found possible to successfully grow cotton in infested regions by attention to cultural methods with included early-ripening varieties, check systems of planting, destruction of cotton stalks in autumn, and clean cultivation. Advantage also was being taken of predaceous and parasitic insects, birds, and other natural enemies of the boll weevil, and they are being protected and distributed as rapidly and widely as possible. See ENTOMOLOGY.

COTTON-SEED OIL AND COTTON PRODUCTS. See COTTON.

COUNTRY LIFE COMMISSION. See AGRICULTURE under *Leading Events*.

COURT TENNIS. See RACQUETS AND COURT TENNIS.

COWS. See STOCK RAISING.

CREMATION OF GARBAGE. See GARBAGE AND REFUSE DISPOSAL.

CRETE. An island in the Mediterranean, south of Greece. Area, 3327 square miles; population (1900), 310,056, including 269,719 Christians, 33,496 Mohammedans, 728 Jews, and 6113 foreigners (3977 Greeks, 1075 Turks, 556 Italians, 141 British, and 136 French). The principal towns, with their population in 1900, are Canea, the capital, 21,001; Candia (Heracleion), 22,481; and Rethymo, 9311. In 1907-8 there were 448 Christian primary schools, with 30,149 pupils; 18 Mohammedan primary schools, with 1957 pupils; and 31 Christian secondary schools, with 4174 pupils. The chief products and exports are olive oil, raisins, carob-beans, wine, almonds, silk cocoons, skins, and soap. The imports are flour, textiles, leather, metal goods, rice, barley, sugar, coffee, etc. In 1906 the imports amounted to 10,270,000 drachmas, and the exports to 17,391,000 (1 drachma equals 19.3 cents). The trade is chiefly with Greece, Turkey, Austria-Hungary, and Great Britain. The length of telegraph line is 230 miles. Crete is nominally a Turkish dependency (see below), but is autonomous and pays no tribute. In 1906 the four protecting Powers—Great Britain, Russia, France, and Italy—conferred upon the Greek King the right to propose the High Commissioner, who is chief executive. The present incumbent is Alexander Thr. A. Zaïmis, formerly Prime Minister of Greece, who assumed office on October 1, 1906, for a term of five years. Foreign relations are controlled by the representatives of the protecting Powers at Athens. The Constitution of February, 1907, provides for an Assembly of 64 members elected for two years. The High Commissioner appoints his three Councillors, or Ministers, who may sit and speak in the Assembly, but have no vote unless they are deputies. The budget for 1907-8 estimated the revenue at 5,930,332, and the expenditure at 5,905,980 drachmas. The public debt was 5,317,226 drachmas in 1907. The militia, service in which is obligatory, consists of 41 officers and 1000 men. The police force numbered 1301 in 1907. Both militia and police are under Greek officers.

HISTORY. The protecting Powers announced their decision in May that the international troops should gradually be withdrawn from the island. Some disturbance in Crete followed this announcement, and conflicts between Mohammedans and Christians were reported. The chief event of the year was the declaration on October 7 of union with Greece. The Cretan Chamber voted for union and appointed six commissioners who should govern the island in the name of the King of Greece until the Greek government was ready to take charge. The proclamation of union was immediately followed by protests from Turkey, and later (October 28) by the promise of the Powers that the matter would be made the subject of negotiation with Turkey, provided order were maintained on the island and the rights of the Moslems respected. See BALKAN QUESTION and TURKEY, paragraphs on *History*.

CRETE, EXCAVATIONS IN. See ARCHAEOLOGY.

CRICKET. The Philadelphia team of cricketers which visited Great Britain in July and August won seven out of the fourteen games played, one being a draw. In these games the batting of A. M. Wood and the bowling of J. B. King were especially noteworthy. Wood averaged 23.78 runs in 19 innings, and made a high score of 132. King took in all 115 wickets, with an average of 10.48 runs a wicket. The thirty-fourth annual match between the All-Philadelphia and the Canadian teams, held at Philadelphia on September 14 and 15, was won by the former team. In their second innings the Canadians were all out for 116 runs as against the Philadelphians scoring 173 in their first innings. The Metropolitan District League championship in Class A was won by the Columbia Oval team, which had six victories and no defeats. The Class B championship was won by Manhattan.

CROSS COUNTRY RUNNING AND MARATHONS. Cross country running was very popular during 1908, more events of the kind being held than in any previous year. The Amateur Athletic Union's junior and senior championships took place at Celtic Park, Long Island, on November 14. James J. Lee, of the Boston A. A., won the junior event, covering the distance of 6¼ miles in 36 minutes, 18 seconds. The winning club in this event was the Trinity A. C., which scored a total of 78 points. The senior championship was won by Fred Bellars, of the New York A. C., who covered the distance in 34 minutes, 15 seconds. The Irish-American A. C. scored the most points, having six of the seven first places.

The Intercollegiate Championship, held at Princeton, N. J., on November 21, had seventy-two starters. The winner was H. C. Young, of Cornell, whose time was 34 minutes, 14 seconds. G. A. Dull, of Michigan, finished second in 34 minutes, 16 seconds, and H. Jacques, of Harvard, third in 34 minutes, 20 seconds. The team scores were: Cornell, 29; Syracuse, 87; Harvard, 89; Yale, 90; Michigan, 105; Pennsylvania, 134; Columbia, 188. Princeton failed to finish. In college dual runs Cornell and Harvard each defeated Yale, and Carlisle defeated Pennsylvania.

On November 25, at Madison Square Garden, New York City, John J. Hayes, winner of the Marathon race at the Olympic games (q. v.),

was defeated by Dorando Pietri, Italy, the winner's time being 2 hours, 44 minutes, 20 2-5 seconds. On December 15, Dorando was in turn defeated by Tom Longboat, whose time was 2 hours, 45 minutes, 52 2-5 seconds. The Marathon distance is 26 miles, 385 yards.

CROWNINSHIELD, ARENT SCHUYLER. An American naval officer, died in Philadelphia, on May 27, 1908. He was born at Seneca Falls, N. Y., on March 14, 1843, and graduated at Annapolis in 1863. He took part in the two attacks on Fort Fisher while attached to the *Ticonderoga* during the Civil War. He became a lieutenant in 1866, lieutenant-commander in 1868, commander in 1880, captain in 1894, and rear-admiral in 1902, retiring in 1903. During the Spanish-American War he was a member of the Board of Naval Strategy. He commanded the European squadron which was present in English waters in honor of the coronation of Edward VII in 1902.

CRUELTY TO ANIMALS, AMERICAN SOCIETY FOR THE PREVENTION OF. An institution whose object is sufficiently indicated by its name, founded in 1866. The 42nd annual report, covering the year 1907, indicated that 6567 complaints of alleged cruelty were investigated during the year, resulting in 1015 arrests and prosecutions; 7861 animals were suspended from labor; 4419 horses, mules and other large animals were humanely destroyed; 108,619 small animals, homeless or disabled past recovery, were also destroyed, and 1015 disabled horses and other large animals were removed in ambulances. The excess of expenses over income was \$1,921.82. The Society received a bequest during the year of \$6,687.50, and from members' dues, donations and other sources, \$113,861.05. The President is Alfred Wagstaff, and the Secretary, Richard Welling. The Society has a handsome building at the corner of Madison Avenue and 26th Street, New York City.

CRUELTY TO CHILDREN, NEW YORK SOCIETY FOR THE PREVENTION OF. A society whose purpose is indicated by its name, organized in 1874. During 1907 the Society received 15,892 complaints and prosecuted 10,371 offenders, of whom 8456 were convicted. There were rescued from destitution and vicious surroundings, 9952 children, and 8192 received care, food, and clothing at the building of the Society. All complaints of neglected children are investigated by the Society and offenders against the law are vigorously prosecuted. A school of instruction for prospective workers has been organized and is conducted in the building of the Society at 297 Fourth Avenue, New York City. The President is John D. Lindsay, the Secretary and Superintendent, E. Fellows Jenkins.

CRUISER-BATTLESHIPS. See **BATTLESHIPS.**

CUBA. An island republic of the West Indies, in 1908 under the protection of the United States. Area, 45,881 square miles. According to the census of 1907 the population numbered 2,048,980, against 1,572,845 in 1895. The population in 1907 by provinces was as follows: Pinar del Rio, 240,372; Havana, 538,010; Matanzas, 239,812; Santa Clara, 457,431; Camaguey, 118,269; Oriente, 455,086. The principal cities, with their populations in 1907, are: Havana, 297,159; Santiago, 45,470; Matanzas, 36,009; Cienfuegos, 30,100; Camaguey, 26,616; Cardenas,

24,280. The immigrants in 1905-6 numbered 52,652; in 1906-7, 29,572; in 1907-8, 31,227, including in the last year 24,792 Spaniards, 1928 Americans, 1438 British, and 107 Germans.

MINING AND FISHING. The minerals include iron, manganese, copper, gold, lead, zinc, coal, asphalt, asbestos, and graphite. Very few of the mines are worked. The exports of minerals to the United States during the year ending June 30, 1908, consisted of 3,520,679 pounds of copper ore, matte, and regulus, valued at \$382,460; 486,038 pounds of copper pigs, bars, ingots, and plates, valued at \$66,315; 646,443 tons of iron ore, valued at \$2,275,625; and 20,331 tons of manganese ore, valued at \$182,972. The Spanish-American Iron Co., which is owned by the Pennsylvania Steel Co., owns the Mayari deposits, in the province of Oriente, which are estimated to contain 600,000,000 tons of iron ore. In 1908 the company had 1000 men engaged in the construction of its plants, a railway of 14 miles from the mountains to the coast, and harbor works on the Bay of Nipe. The Bethlehem Steel Co. acquired 875 acres about 12 miles east of Santiago, which are estimated to contain 75,000,000 tons of iron ore, of which 2 per cent. is nickel and 1 per cent. chromium. The export of sponges to the United States in the same year was valued at \$125,779. A valuable salt deposit was discovered in 1908 in the province of Matanzas, and preparations for working it were started. The product is pure.

AGRICULTURE. In the season 1906-7 sugar cane took up about 341,848 hectares (1 hectare equals 2.47 acres), against 301,440 in 1905-6. The output of crude sugar in 1906-7 was 1,444,310 long tons, against 1,229,736 in 1905-6. For 1907-8 the crude sugar output was estimated at 985,711 tons. The output of 1906-7 was valued at \$72,134,999, against \$60,328,753 in 1905-6. The export of 1906-7 was 1,292,777 long tons of raw sugar and 3311 tons of refined sugar, valued at \$64,720,336, against 1,180,615 tons in 1905-6, valued at \$57,909,932. The production of molasses in 1906-7 was 46,745,650 gallons, of which 34,532,005 gallons, valued at \$936,789, were exported. The manufacture of aguardiente (native rum or brandy) in 1906-7 amounted to 6,806,333 gallons, against 4,683,562 in 1905-6; of alcohol, 2,954,809 gallons, against 2,843,548 in 1905-6. The value of the total exports of sugar and its products, including molasses, sweets, aguardiente, and other distilled products, was \$66,012,642 in 1906-7, against \$58,969,916 in 1905-6. The number of sugar mills in operation in 1906-7 was 184; in 1907-8, 108. A statement made as to the ownership of the sugar plantations, meaning those which produce sugar and not cane alone, assigns 74 to Cubans, 76 to Europeans, and 36 to Americans. The American mills are of the most modern and efficient construction, many of the Cuban mills are of obsolete type, while the European mills take middle rank. Of the production of 1906-7, about 35 per cent. is assigned to the Cuban mills, 35 per cent. to the European, and 30 per cent. to the American. The entire area suitable for growing sugar cane is estimated at 15,451,000 acres.

The output of tobacco in 1907 amounted to 440,145 bales (to which the Vuelta Abajo contributed 234,012 bales), against 286,288 bales in 1906. The exports of tobacco and tobacco manufactures in 1907 were valued at \$28,645,908,

against \$36,702,585 in 1906, while the native consumption is estimated at \$13,697,640 and \$12,334,154 during the two years, making the total crop value aggregate \$42,343,548 in 1907 and \$49,036,740 in 1906. Out of a total of 200,672 bales of leaf tobacco exported in 1907 and valued at \$14,960,933, the United States took 180,274. Of the 186,428,607 cigars sent abroad in 1907, worth \$13,112,226 (out of a total production of 364,400,997), the United States received 61,869,131. The cigarette production in 1907 was 227,299,494 packages, of which 16,505,104, valued at \$449,928, were exported and 210,794,390 consumed locally.

The production of oranges is rapidly extending. For 1908 the crop was estimated at 800,000 boxes. Until the three years before 1908 large quantities of oranges were annually imported into Cuba from Florida and California, and while the scientific cultivation of the fruit was in its infancy, its development had been so rapid and generally profitable that it was be-

lieved that in another year the industry would progress sufficiently to supply the local demand for the fruit. The business of orange culture in Cuba is almost entirely in the hands of Americans. Other important crops are cacao, which is carried on chiefly in the province of Oriente and is rapidly extending; pineapples, of which 957,412 crates were exported through the port of Havana during the first six months of 1908; cocoanuts, bananas, coffee, corn, sweet potatoes, and hemp. On June 30, 1907, there were in Cuba, 2,584,877 head of cattle, 413,937 horses, 50,637 mules, and 2810 donkeys.

FOREIGN COMMERCE. The total imports in the fiscal year 1907-8 were valued at \$96,993,134, and the total exports, \$97,449,917, against \$96,668,889 and \$110,764,937 respectively in 1906-7. The imports and exports of specie in 1907-8 were \$1,835,787 and \$14,675,020 respectively, against \$66,306 and \$4,047,909 respectively in 1906-7. The trade with the principal countries for these two years was as follows:

From and to	Imports		Exports	
	1907-8	1906-7	1907-8	1906-7
United States	\$46,460,908	\$48,192,672	\$81,338,327	\$98,141,012
Other American countries	8,346,912	9,500,962	2,726,006	2,211,504
Germany	7,762,761	6,433,969	3,734,394	3,130,757
Spain	8,816,910	8,286,973	1,006,029	413,306
France	5,854,474	5,781,608	1,938,427	1,002,329
United Kingdom	14,550,912	13,639,130	5,143,571	4,446,223
Other European countries	3,578,580	3,434,585	868,179	821,672
Other countries	1,163,778	1,398,996	692,984	508,135

According to the United States returns for the fiscal year ending June 30, 1908, the total imports from Cuba were valued at \$83,284,692, and the total exports to Cuba, \$47,161,306. The values of the leading imports from Cuba were: Sugar, \$58,320,582; leaf tobacco, \$13,041,060; cigars, cigarettes, and cheroots, \$4,163,269; iron ore, \$2,275,625; mahogany and other cabinet woods, \$693,840; bananas, \$872,272. The values of the leading exports to Cuba were: Corn, \$1,230,241; wheat flour, \$3,554,000; coal, \$2,152,130; coffee, \$1,468,347; cotton manufactures, \$1,585,196; eggs, \$911,612; iron and steel manufactures, \$8,183,119; boots and shoes, \$2,577,966; meat and meat products, \$6,163,601; milk, \$905,068; mineral oil, \$999,903; vegetables, \$1,021,743.

COMMUNICATIONS. In 1906-7 the ports were entered by 4294 ocean-going vessels of 9,852,115 tons, and 13,278 coasting vessels of 3,068,815 tons. The merchant marine in 1907 consisted of 63 steamers of 47,118 tons, and 211 sailing vessels of 18,107 tons. The length of railway in 1908 was 1897 miles. On February 14, 1908, the Provisional Governor decreed the appropriation of \$1,007,750 towards the repair and extension of highways, roads, and bridges.

GOVERNMENT. Since the resignation of President Palma on September 28, 1906, the island was under the provisional government, headed first by Secretary W. H. Taft, and later by Governor C. E. Magoon (see *History*). On November 14, 1908, José Miguel Gomez was elected President of the Republic.

FINANCE, ETC. The budget for the fiscal year 1907-8 estimated the revenue and expenditure at \$25,466,325 and \$23,309,539 respectively, and for 1908-9 at \$29,415,163 and \$24,285,303 respectively.

For the latter year the revenue from customs was estimated at \$24,245,705; internal revenue, \$778,800; posts and telegraph, \$860,872. The estimated expenditure included \$10,877,706 for administration, \$3,431,900 for finance, \$4,275,794 for public instruction, \$3,257,878 for public works, and \$1,289,095 for justice.

ARMY. The military forces in Cuba during 1908 consisted of a part of the United States army known as the "Army of Cuban Pacification." The effective strength on June 30, 1908, was 6088 officers and men, of which there were 328 officers and 4839 men of the army and 51 officers and 827 men of the marine corps. The native army of Cuba consisted of about 5000 men of the Rural Guard and Cuban artillery.

HISTORY.

The most important events in 1908 in the history of Cuba, and indeed the most important and significant since the establishment of the Provisional government on September 29, 1906, were the elections held on August 1, and November 14. These were taken to be the crucial test of the Provisional government and of the preparedness of the Cuban people for self government. As a preliminary to these elections and the establishment of self government for the island, it had been decided in 1907 that a census should be taken. The date fixed was September 30, 1907, and the census was completed on November 14. The work of compiling and copying the results was carried on in the early part of 1908 and by the end of March it was completed. It was found that the number of persons entitled to vote at the elections was 419,342 out of a total population of 2,048,980. These elections were the essential part of the plan of the

American government to end the Provisional government and turn the island over again to the Cuban people. On January 13, President Roosevelt made an order declaring that the Provisional government would terminate not later than February 1, 1909. The date was afterwards officially designated as January 28, 1909, a date sacred to Cuba as being the anniversary of the birth of José Martí, the apostle and martyr of Cuban independence.

ELECTORAL LAW. The law under which the elections were conducted was promulgated on April 1, 1908, and again on September 11, 1908, with modifications which were made necessary by experience during the election on August 1st. The law was characterized by three distinguishing features: First, the system of permanent electoral boards, charged with the conduct of elections. Each municipality has a municipal electoral board of three members; each province a provincial electoral board of five members, and in addition there is a central electoral board in Havana, composed of five members, of which there are two political members representing the two leading political parties; the non-political members are officials of the judiciary, or delegates of the high schools or of the University. Second, the system of registration, which is not voluntary, but contemplates the keeping by the electoral boards of lists of persons in Cuba entitled to vote. The basis for such lists was obtained by means of the population census of 1907 and the lists are subject to correction by the boards throughout the year. Third, the system of proportional representation, according to which the parties are entitled to membership in the bodies to which the system is extended in proportion to the number of votes polled by each party. The constitution of Cuba grants the right of suffrage to every male citizen in the full enjoyment of his civic rights. This admits to the electorate a large proportion of illiterates.

The Electoral Commission considered the desirability of establishing guarantees with reference to this ignorant vote, but it was deemed inadvisable that such distinction should be made. In regard to the suffrage of aliens, a compromise was effected under which aliens, while not permitted to vote, were made eligible for election to the office of municipal councilman. Foreigners were also made eligible in the municipal law for appointment as associate members of the municipal council committees.

POLITICAL PARTIES. The early part of 1907 saw the creation of the Conservative Party on the ruins of the old Moderate Party, and the division of the Liberal Party, which had carried on the revolution of 1906 that culminated in the establishment of the Provisional government. The split in the ranks of the Liberal Party was caused by the rival candidacy of Senator Alfredo Zayas and Major General José Miguel Gomez for the presidential nomination, and the two wings were commonly known as the *Zayistas* and *Miguelistas*. Each claimed to constitute the original Liberal Party and characterized the other branch as a dissident faction; each perfected its organization, the *Miguelistas* designating themselves by the name of Historic Liberal Party, while the *Zayistas* clung to the name of Liberal Party. The Conservative Party resolved to make no nomination for President or Vice-President until after the municipal elections. The National Independent Party, also organized locally, but soon cast its lot with the *Zayistas*. There were, in addition,

several local fusion and independent tickets. In the provincial elections, three of the recognized political parties, the National Conservative, the Liberal and the Historic Liberal, nominated provincial tickets. In addition, there were independent provincial tickets in three provinces. The Conservative Party nominated municipal tickets in all but two of the 82 municipalities. The Liberal Party had municipal tickets in 67 of the municipalities and the Historic Liberals made nominations in 69 municipalities.

CAMPAIGN AND CANDIDATES. The campaign for provincial and municipal elections was carried on in the most orderly manner and would have done credit to any country. There was no discussion of platforms or of differences of principles, but the campaign was based entirely on the records of the parties and the personality of the candidates. Notwithstanding the enthusiasm which prevailed, the general tone of the campaign speeches was marked by a moderation for which party leaders, local as well as national, deserve high credit. This preliminary election offered a measure of strength between the Liberal factions and the result made the advantages of fusion patent. A compromise between the factions was effected and the combined party continued under the name of the Liberal Party. General José Miguel Gomez, who had led the wing which developed the greatest strength, was recognized as the presidential nominee of the party. The vice-presidential candidate of the *Miguelistas* resigned and Senator Alfredo Zayas, the leader of the other wing of the Liberal Party, was made the party's nominee for Vice-President. The posts of senators and representatives were also proportionately distributed. The Conservative Party nominated General Mario Menocal for President and Dr. Rafael Montoro for Vice-President.

General Gomez, the nominee of the Liberals for President, who distinguished himself in the Cuban War of Liberation against Spain, in which he attained the rank of major general, and has since been prominent in political affairs, was a member of the Cuban Constitutional Convention, Governor of Santa Clara Province, and was presidential candidate of his party against Estrada Palma in 1905. Dr. Zayas, the vice-presidential candidate, is a lawyer of recognized ability. He was one of the most active conspirators against Spain and was confined by the Spanish government in an African prison on account of his activities. Later he was a delegate to the Cuban National Convention and a member of the Cuban Senate. In 1905 he was the Liberal candidate for Vice-President. General Menocal, candidate of the Conservative Party for President, was one of the youngest major generals of the Cuban Army in the War of Liberation against Spain. He is an engineer, a graduate of Cornell University and manager of one of the largest sugar plantations in Cuba. In Spanish times he was Cuban Deputy of the Spanish Cortes, and Secretary of State in the government of autonomy which Spain gave Cuba in her efforts to stop the insurrection. In recent years he has been Cuban Minister to England and Germany.

RESULTS OF THE ELECTIONS. The provincial and municipal elections, held on August 1st, were characterized by the same order which prevailed during the campaign. The entire vote cast was 269,132, or about 60 per cent. of the number of votes registered. Returns from the

provinces showed that the Conservatives had elected their candidates for governor in the provinces of Pinar del Rio, Matanzas, and Santa Clara; the Liberals in the provinces of Camaguey and Oriente. In the 82 municipalities the Conservatives elected 28 mayors, while the Historic Liberals elected 35, and the Liberals 18. The results of the election were quietly accepted by all parties and the charges of fraud and intimidation, which had been so general in the previous elections, were conspicuous by their absence. It was universally conceded that no fairer election had ever been held. The elections of November 14 passed off as quietly as those of August 1. The independent vote proved to be a negligible quantity and the election may therefore be regarded as a fair test between the Conservatives and the Liberals. The result of the votes was as follows: Liberal, 201,199; Conservatives, 130,256; or a Liberal majority of 70,943. The total vote cast in the election was 331,455. The Liberals carried each of the six provinces, but obtained the largest majorities in Havana, Santa Clara and Oriente provinces. The Liberal candidates for President and Vice-President, General Gomez and Senator Zayas, were assured therefore the entire 107 electoral votes in the various presidential electoral assemblies when they should be convened. Under the rules of proportional representation, the Conservatives elected 32 members of the Lower House of Congress and the Liberals 51.

ASSUMPTION OF OFFICE BY LOCAL OFFICIALS. On October 1st the newly elected Provincial Governors and Councils, and Municipal Mayors and Councils entered upon office, and on the same date the new provincial and municipal laws provided by the Advisory Electoral Commission were put into effect. The occasion marked an important step toward the restoration of the government of the Republic to the Cuban people. It was also an occasion of special moment to the Cuban municipalities, for, owing to the failure of the Cuban Congress to make the necessary provisions, or to enact a municipal law, the Mayors and Municipal Councilmen who took their seats on October 1, 1908, were the first town officials elected by the people since the municipal election held by the Military government in 1901. Since that time vacancies have been filled by the Councilmen themselves or by the national government and the bitterness engendered by real and alleged irregularities in the making of such appointments was a potent factor in the insurrection of 1906.

CESSATION OF PROVINCIAL GOVERNORS AND COUNCILS. From the beginning of the Provincial administration insistent demands had been received from all elements of the Liberal Party for the removal of the Provincial Councils elected at the 1905 elections. Under the law the Provincial Governors and Councilmen hold office for four years, and one-half of the Council is renewed every two years. One-half of the Council in office had been elected in 1903 and had taken their seats in 1904. The other half of the Provincial Council had been elected in 1905 and had assumed office in 1906. It was against the latter that criticisms were directed in view of the illegalities with which their election was tainted, but the necessities of local government made necessary their temporary retention. On April 6, 1908, the term of the Councilmen elected

in 1903 expired, leaving in office only those elected in 1905, not enough to constitute a legal quorum to do business. The requests for cessation increased with the approach of the elections and in order to obviate possible embarrassment and avoid the suspicion that the influence of the National government was used to benefit any particular party, it was considered advisable that the offices be vacated. The seats of the second half of the Provincial Councilmen were therefore declared vacant and the powers of the Provincial Councils temporarily vested in the Provisional government. The resignation of the Provincial Governors was requested and accepted. For the vacancies created by the retirement of the Provincial Governors officers of the United States army were appointed Acting Provincial Governors to hold office at the pleasure of the Provisional government until the installation of the governors chosen at the Provincial elections. The American officers so appointed continued to act until October 1, 1908, when the officials chosen at the election of August 1st entered upon office.

LEGISLATIVE CONDITIONS. Since the establishment of the Cuban Republic, the urgent necessity of the revision of the laws of Cuba has been continually felt. The great body of the Cuban law consists of provisions enacted for the Spanish Peninsula, subsequently extended to Cuba and later modified and amended by Royal Orders and Decrees, orders of the Military government established by the United States, laws of the Cuban Congress and decrees of the Provisional Governor. Being laws provided for the country under a monarchical government, they are, in general, not in harmony and often quite at variance with the precepts of the extremely liberal constitution of the island. The Cuban Congress failed to make adequate response for the demand for legislation under the Constitution. The lack of proper legislation was felt, particularly with respect to the municipal law. After the adoption of the Constitution, the municipalities continued to be governed by the Spanish Provincial municipal law of January 28, 1878. This law gave the central government supervising control over the municipalities and was, therefore, in conflict with the spirit and letter of the Constitution, which grants the municipalities an unusual measure of autonomy. The efforts of the national authorities to enforce the municipal law in the absence of other provisions engendered animosities which contributed to the insurrection of 1906. Upon the establishment of the Provisional administration, provision was made for the execution of the legislative programme contained in the plan promulgated by the American Peace Commission in its negotiations carried on between the contending forces in September, 1906. It was known as an Advisory Commission and is composed of nine Cubans prominent in public life representing the several political parties, and three Americans. The Commission was first charged with the drafting of an Electoral Law, a Municipal Law, a Provincial Law, a Law organizing the Judiciary, and a Civil Service Law. This programme was afterward extended to include other necessary laws. The provisions of the Electoral Law are noted above. The Organic Municipal Law was promulgated on May 29, 1908, and was put in force on October 1, 1908. Its distinguishing feature is that it represents an attempt to organize a municipal government in harmony with the Cuban Constitution. The Provincial Law

took effect also on October 1, 1908. This law takes the place of the Spanish law of the Provinces. It provides for the entire reorganization of the provincial governments and is drafted to accord with the provisions of the new Organic Municipal Law. The Judiciary Law was not promulgated, but was published for public criticism, and the observations deemed acceptable were incorporated in the project by the Commission. The Civil Service Law, too, was not promulgated, but in December, 1908, a final draft was being prepared for submission to the Provisional Governor. In its general plan the project follows the lines of the Civil Service Law of the United States. Among other important laws with which the Commission was charged with drafting were the Law of Executive Power, the Law of Armed Forces, the Code of Military Justice, a Drainage and Irrigation Law, a Telephone Law, a Notarial Law, and a Game Law. The Commission was at work during the year on the revision of the penal code and new reforms in the granting of pardons.

LAW AND ORDER. The conditions of law and order on the island during the year were most gratifying. This was due, in a large measure, to the services of the Rural Guard, which, during the administration of the Provisional Government, has been put in a high state of efficiency. At the time of the establishment of the Provisional administration, the Rural Guard was found to be in a demoralized state and regarded with disfavor and suspicion by the public on account of having been used as a political agency. A number of United States officers were detailed to serve with the Guard, and largely through their efforts the personnel and spirit of the body was improved. One of the most important services rendered by this force was the complete suppression of brigandage which, for centuries had been a menace to peaceful conditions on the Island. Several bandits were captured and sentenced to long terms of imprisonment in 1908.

OTHER EVENTS. Action was taken during the year on the option held by the State on certain property belonging to the Catholic Church in the Province of Santiago de Cuba. This property was part of the estates belonging to monastic institutions and confiscated by the Spanish government. The State, in lieu of returning the property, made annual appropriations to the clergy, but when such appropriation ceased on the separation of Church and State in 1899, the claim made by the Church to such of its properties as were still in the possession of the government was recognized as valid. Part of the property was therefore purchased outright by the State and options secured on the remainder. The Cuban Congress failed to act in the matter and these options were extended by agreement to June 30, 1907. One of them was upon certain property in the City of Havana, occupied by the Havana Customs House and other public offices, and the purchase was effected by the State on July 12, 1907. The other was for property in the Province of Santiago and the option thereon was, in July, extended for one year, to June 30, 1908. The lump sum at which the Church agreed to sell the Santiago property was \$535,000 and during the entire period that the option ran, the State paid annually to the Church as rent for this property a sum equal to 3 per cent. of the option price. The Church authorities declined

to extend the option on the property for the third time and an investigation was carried on as to the advisability of taking advantage of the option or returning the property to the Church. The value of the property was found to be \$360,900 and an offer was made to purchase for \$210,000 such part of the property as was needed for public service or was settled by Cuban veterans, or, if the Church found this unacceptable, to purchase the entire property for \$360,900, or otherwise to return the property and acquire by condemnation such portions as were urgently needed by the State. The Church agreed to the second plan for purchase, and the purchase was carried into effect on July 18, 1908.

Tomas Estrada Palma, first President of the Republic, died on November 4, 1908. Other distinguished patriots who died during the year were Generals Bernabe Boza, March 17, and Rafael Portuondo, July 15. Both had been brigadier generals in the War of 1895-98. The former was a member of the Cuban Congress at the time of his death, and the latter was Speaker in the first House of Representatives of the Cuban Republic.

CULBERTSON, JAMES COE. An American physician, died on June 4, 1908. He was born in Miami County, Ohio, on December 19, 1840, and graduated at the Bellevue College Hospital in 1865, having served as a private in the Fifth Ohio Infantry in 1861, as a hospital steward in 1862, and as an assistant surgeon, in the One Hundred and Thirty-seventh Ohio Volunteer Infantry, in 1864. After the war he practiced medicine in Cincinnati, was editor and publisher of the Cincinnati *Lancet-Clinic*, after 1873; editor of the *Journal of the American Medical Association* in 1891-93, and professor of the principles and practice of medicine in the Cincinnati College of Medicine and Surgery after September, 1893. He was an active promoter of the University of Cincinnati, and secured the passage of the ordinance conveying to that institution the sixty-acre tract of land whereon its buildings now stand. He was also an active member of the Cincinnati Board of Education, from May 1, 1896, and as such persistently and successfully advocated the establishment of public playgrounds, free bathhouses and other public improvements.

CULLINAN DIAMOND. See DIAMONDS.

CULLINGWORTH, CHARLES JAMES. An English physician, died on May 11, 1908. He was born in Leeds, on June 3, 1846, was educated at Wesley College (1863-67), and at the Leeds School of Medicine (1861-65), and began to practice in 1865. After some general practice he specialized in the diseases of women and in 1873-88 was surgeon to St. Mary's Hospital for Women, in Manchester. In 1888-1904 he was obstetric physician at St. Thomas's Hospital, in London, the gynecological department of which reached a high degree of efficiency under his direction. He also served as examiner at the University of London in 1890-95, and at the University of Cambridge in 1896-1900; was president of the Obstetrical Society, of London, in 1897-98; Bradshaw lecturer, at the Royal College of Physicians in 1902, and Ingleby lecturer at the University of London in 1904. His writings, which display much literary taste, include *Oliver Wendell Holmes*, and *the Contagiousness of Puerperal Fever*, the purely bio-

graphical features of which are noteworthy; *Charles White, a Great Provincial Surgeon and Obstetrician of the 18th Century*, and contributions to Allbutt and Playfair's *System of Gynaecology*.

CUMBERLAND PRESBYTERIAN CHURCH. A religious denomination, organized in 1810. A movement was begun in 1903 to merge the United Cumberland Presbyterian with the Presbyterian Church in the United States of America. This effort culminated in 1906 in the vote of the majority in the Cumberland Assembly to adjourn sine die as a separate Assembly. A large majority of those commissioners who opposed the proposed union, emphasized their protest by continuing, as they claimed, the work of the Cumberland Assembly, thus ignoring the majority vote. It is claimed by those who voted for the union that the church had been merged with the Presbyterian Church of the United States of America, and that the Cumberland Presbyterian Church, as it was composed prior to 1906, does not exist. That body which refused to accept the union, on the other hand, claimed that the Cumberland Presbyterian Church was not a new organization but was a continuation of the same church, organized in 1810, notwithstanding the exit of nearly one-third of its membership and two-thirds of its preachers, who joined the Presbyterian Church of the United States of America.

Litigation was being carried on in 1908 to determine the disposition of the property involved. During the year, five suits were decided, four of these being in favor of the Cumberland Presbyterian Church and one practically in favor of neither party inasmuch as the court held that in the form the suit appeared before them there were no property rights to be passed upon. These suits were as follows: One in Kentucky lower courts in favor of the Cumberland Presbyterian Church; two in Indiana lower courts in favor of the Cumberland Presbyterian Church; one in the Texas Appellate Court, and one in the Illinois Supreme Court practically in favor of neither party as stated above. About 100,000 communicants and 600 preachers remained in adherence to the Cumberland Presbyterian Church. Successful meetings were held during the year and accessions were made in larger numbers than before the disruption caused by the union movement. The 78th Cumberland Presbyterian General Assembly convened at Corsicana, Texas, on May 21, with a representative attendance. A denominational Young People's Society was organized during the year.

CUMMINS, ALBERT BAIRD. An American politician, United States Senator (Republican) from Iowa. He was born at Carmichaels, Pa., on February 15, 1850, received an academic education at Waynesburg, Pa., and then took up surveying and was made chief engineer of the Cincinnati, Richmond & Fort Wayne Railroad. He also studied law and was admitted to the Illinois bar in 1874, beginning his practice in Chicago. In 1878 he went to Iowa and ten years later was elected to the State Legislature. He was an unsuccessful candidate for United States Senator in 1894. From 1896 to 1900 he served on the Republican National Committee. He was elected governor in 1902 and re-elected in 1904 and 1906. In 1908 he was the candidate of the tariff-revision faction of his party for the United States Senate against William

B. Allison, who represented the "standpatters," but was defeated in the primaries. Upon the death of Senator Allison, however, he again entered the field and on November 24 was elected Senator by the Legislature. Senator Cummins was for a time prominently mentioned for the Republican vice-presidential nomination in 1908. See IOWA.

CURACAO. A Dutch colony of the West India islands, including the islands of Curaçao, Buen Ayre, Aruba, the southern part of St. Martin (the northern belonging to France), St. Eustache, and Saba. Total area, 436 square miles; total population, 53,376 in 1906. Willemstad, the capital, on the island of Curaçao, had 13,836 inhabitants in 1906. The products are mainly sugar, tobacco, corn, and fruits. Gold and phosphate of lime are worked in Aruba. The imports and exports of the island of Curaçao in 1906 amounted to 3,152,000 and 493,000 florins respectively (1 florin equals 40.2 cents). The trade of the Dutch West Indies is mainly with the United States, the imports from which (according to the U. S. returns) in 1907-8 amounted to \$706,210, and the exports to them, \$361,966. The revenue and expenditure for 1908 were estimated at 566,615 and 915,903 florins respectively, the deficit being covered by the Netherlands. There is a garrison of 205, and a Dutch naval vessel is always cruising in adjacent waters. The Governor in 1908 was Jkhr. J. O. de Jong van Beek en Donk. On May 14, 1908, President Castro of Venezuela issued a decree that all goods hitherto transshipped at Willemstad should henceforth be transshipped at Puerto Cabello. A large part of the trade of Curaçao was thus disorganized. A demonstration by a mob against the Venezuelan consul at Willemstad resulted in his withdrawal from the island, and a boycott against Venezuelan goods was instituted by the merchants. See NETHERLANDS AND VENEZUELA.

CURLING. The International match for the Gordon Medal was held at Montreal on February 7, Canada being represented by the Lachine Curling Club and the Royal Caledonian Curling Club, and the United States by the Grand National Curling Club and the Utica Curling Club. Canada won by the score of 49 to 28. Other important matches were: Gordon Medal Match, Boston, January 30, won by the Thistle Curling Club; North against South of Scotland, Van Cortlandt Lake, N. Y., January 11, won by North; Match for Silver Cup, presented by Utica Curling Club, Van Cortlandt, N. Y., February 12, won by the Utica Curling Club; Mitchell Medal Match, Van Cortlandt, N. Y., January 28, won by J. F. Conley, of the Grand National Curling Club. In Canada the Victorian Jubilee trophy was won by the Montreal Club; the Governor-General's prize by the Rideau Club; and the Montreal A. A. A. trophy by the Montreal Club.

CURRENCY. Following the outbreak of the financial panic in Oct., 1907, the demand for a law providing for a more elastic currency became very insistent. The crisis once more impressed upon the country the inability of the national banks, the sole banks of issue, to expand their circulation at a time of extreme money stringency. The authorized means at the disposal of the national government of increasing the money in circulation in times of temporary stringency were very limited, except as resort

was had to the extra-legal means of loaning government money to the banks free of interest. While almost one-fourth of a billion dollars was thus used in the 1907-8 stringency, with highly beneficial results, the United States Treasury could not be relied on for support at all times. Numerous schemes for reform were proposed. Some proposed a central United States bank with sole power to issue bank notes; others proposed the issue of emergency notes by national banks meeting certain standards, such notes to be based either on the general assets and credit of the bank, or upon approved securities deposited with the Treasury; still others advocated a complete overhauling of the monetary system including a retirement of greenbacks, treasury notes and silver certificates. The scheme finally adopted by Congress, providing only for an emergency currency without attempting a general reform of the banking and monetary systems, was incorporated in the Aldrich-Vreeland Act, approved May 30.

The provisions of the new law are as follows:

(1) Any national bank with unimpaired capital, having bond-secured circulation of not less than 40 per cent. of its capital and a cash surplus of not less than 20 per cent. of its capital, may secure additional circulation; (2) the Comptroller of the Currency, the Treasurer of the United States, and the Secretary of the Treasury are authorized to determine whether conditions require the issue of emergency circulation, to fix time and amount of issue, and to pass on security offered as the basis therefor; (3) the total circulation issued by any bank shall not exceed its capital and surplus and the total amount issued by all shall not exceed \$500,000,000; (4) the emergency notes shall be guaranteed by the government, and shall be similar in character to present national bank notes; (5) they shall, however, bear a graduated tax of not more than 10 per cent. per annum, to insure their speedy retirement when the serious need for them ceases; (6) there shall be deposited in the Treasury lawful money equal to 10 per cent. of the emergency notes as a fund for the redemption of the notes of failed banks. The law provides two ways in which a national bank may secure emergency circulation, all the foregoing provisions applying to either method. The first method is through a national currency association and the second is directly. The law authorizes the formation of a national currency association by not less than ten national banks fulfilling the qualifications noted above, whose aggregate capital and surplus amounts to \$5,000,000. Such banks must be from contiguous territory, only one association may be formed in the same city, and no bank may belong to more than one association. Any member bank may deposit with its currency association, in trust for the United States, State, county, city, town, or other municipal bonds of designated character; the bank will receive from the Comptroller of the Currency, through its association, emergency notes equal to 90 per cent. of the market value of such bonds. Moreover, a bank may deposit with its association two-name commercial paper of not more than four months time and representing actual business transactions and receive emergency notes equal to 75 per cent. of their cash value; the notes based on commercial paper shall not exceed 30 per cent. of the bank's capital and surplus. The law makes the members of the currency associa-

tion jointly and severally liable for the redemption of emergency notes issued to any member bank. By the second method of obtaining additional notes, a bank deals directly with the national authorities. Any qualified national bank may deposit with the Treasury State, county, city, town, or other municipal bonds, but not commercial paper; if these are approved, the comptroller issues directly to the bank notes equal to 90 per cent. of their market value, but not more than their face value. Bonds acceptable are those of civil bodies that have not defaulted in ten years and whose net debt does not exceed 10 per cent. of assessed valuation. This law further authorized a National Monetary Commission, to be composed of nine senators and nine representatives, to investigate the monetary system and the banking and currency laws of the United States, and to report to Congress any changes deemed desirable. This commission was given wide discretion in the calling of witnesses and in making inquiries in this country and abroad. During the summer and fall of 1908 this commission studied conditions at home and in Europe, but no report is expected from it before 1910. All the provisions of this statute expire by limitation June 30, 1914.

As the provisions of this law were intended for use only in times of financial stress, it seems improbable that they will be called into use during the six years authorized. At the close of the year only one currency association, that at Washington, D. C., had been formed. Some bankers have complained that the high tax on the emergency notes (5 per cent. annually the first month and increasing by one per cent. each month until 10 per cent. is reached) would not permit them to make a profit. In reply it is urged that banks are not expected to make a profit, but should be willing to pay something for such a safeguard against bankruptcy in times of panic as the law provides. The provision for the issue of notes on the basis of two-name commercial paper is expected to be of especial advantage to farmers and merchants, if the law is called into use. One undoubted advantage derived from the enactment of this law, and the discussion attending it, is the education of public opinion in the merits of an elastic currency and the soundness of a currency based on securities other than national bonds.

During the fiscal year 1908 a new model for gold coins, designed by the eminent sculptor, Augustus St. Gaudens, was brought into circulation. There were coined from the new designs \$105,939,360 in double eagles and \$4,829,060 in eagles. Another departure in coinage begun at the Philadelphia mint in Nov., 1908, was the use of a die which depresses the design below the face of the coin instead of raising it in relief above. This places the wear of the coin on the flat surface and not on the design and permits the coins to be easily stacked to a uniform height for counting. For the first time the records permit an accurate estimate of the cost of coining metal money. The average cost for one thousand coins was found to be \$29.51 for double eagles, \$13.93 for half-eagles, \$9.80 for half dollars, \$5.93 for quarter-dollars, \$2.53 for dimes, \$2.11 for five-cent pieces, and \$1.12 for pennies. The motto "In God we trust" was omitted from the new gold coins adopted early in the fiscal year, but on May 18 Congress required its restoration within thirty days.

The amount of money in circulation at the opening of the year, as estimated by the Treasurer of the United States, was \$3,078,989,000, a sum never before equalled. The amount increased slightly during January, after which it decreased until near the close of July. During August it rose again to the level of Jan. 1. On Dec. 1 it reached a new maximum of \$3,117,561,000, but fell to \$3,092,315,000 on Jan. 1, 1909. The per capita circulation on the latter date was estimated at \$35.06, as compared with \$34.72 on June 30, 1908, and \$32.22 on June 30, 1907. The amount in circulation on the second day of November was distributed as follows: Gold coin (including bullion in the Treasury), \$610,060,562; gold certificates, \$807,246,389; standard silver dollars, \$74,740,245; silver certificates, \$483,899,842; subsidiary silver, \$131,663,701; Treasury notes of 1890, \$4,691,225; United States notes, \$342,994,056; national bank notes, \$643,202,001. As compared with Nov. 1, 1907, gold certificates in circulation increased by \$129,950,480; national bank notes by \$48,078,135; and gold by \$35,601,476; while silver dollars decreased by \$14,082,714 and treasury notes by \$910,701.

There were 266,306,572 pieces of paper currency in circulation on Oct. 1, 1908. All of these must be redeemed and replaced when worn. It has been found that the average lifetime of United States paper currency varies from 1.5 years for silver certificates to 3.6 years for greenbacks and national bank notes. The aggregate cost of maintaining the paper money in 1908 was \$2,932,000, or an average of \$.01571 for each note issued and redeemed. See CLEARING HOUSES and NATIONAL BANKS.

According to the estimate of the director of the United States Mint, the total stock of money in the world on Jan. 1, 1908, was \$14,847,800,000, an increase of \$567,800,000, as compared with Jan. 1, 1907. The stock of gold money Jan. 1, 1908, was estimated at \$7,014,600,000, an increase of \$122,800,000 during 1907. The silver money was estimated at \$3,530,700,000, as compared with \$3,256,300,000 one year previous. The aggregate uncovered paper money was estimated at \$4,302,500,000, or \$170,500,000 more than one year earlier. The distribution by leading nations was as follows, figures being given for thousands of dollars, except in the last column, which gives the estimated amount of money per capita:

Country	Gold	Silver	Uncovered paper	Amount per capita
United States.....	\$1,612,700	\$715,000	\$779,500	\$35.79
Austria-Hungary	303,100	104,200	131,400	10.79
Belgium	30,800	38,100	129,400	24.54
Australia	159,300	10,000	(a)	35.27
Canada	66,300	6,700	61,200	22.37
United Kingdom.....	564,500	116,800	117,400	17.90
India	113,200	830,000	38,900	3.32
France	926,400	411,100	261,400	40.68
Germany	1,044,400	223,500	277,100	25.49
Italy	258,200	41,600	160,400	13.65
Japan	95,800	54,400	103,700	4.85
Russia	917,300	78,100	(a)	6.94
Spain	87,800	173,700	99,100	18.39
Argentina	139,800	(a)	239,600	63.23

(a) No information.

CURTIS, ALFRED ALLEN. AN American Roman Catholic bishop and Vicar-General of Baltimore, died on July 11, 1908. He was born in Somerset County, Md., on July 4, 1831; in

1856 was ordained a deacon in the Protestant Episcopal Church, and in 1859 was advanced to the priesthood in that church. For nearly ten years he was rector of Mount Calvary Church, Baltimore, but in 1870 resigned from the Episcopal Church and two years later was received into the Roman Catholic Church. In 1874 he was ordained priest and was appointed assistant at the Baltimore Cathedral and private secretary to the archbishop. He was consecrated Bishop of Wilmington, Del., in 1886 and ten years afterward was made resident bishop, also receiving the titular see of Edinus. He served as bishop administrator of Wilmington until 1892. In 1898 he was appointed vicar-general of Baltimore by Cardinal Gibbons, which position he filled until a few days before his death.

CUTCHEON, BYRON M. An American soldier and politician, died at Ypsilanti, Mich., on April 12, 1908. He was born in Pembroke, N. H., on May 11, 1836, removed to Michigan in 1857 and in 1861 graduated at the University of Michigan. He joined the Twentieth Michigan volunteers as a second lieutenant in 1862, and rose to be colonel of that regiment and later of the Twenty-seventh Michigan, and brevet brigadier general of volunteers. He was twice wounded at Spottsylvania and received the Congressional Medal of Honor for gallantry in battle. After the war he was active in Republican politics in Michigan for many years and was a member of Congress from 1883 to 1891.

CYCLING. New professional records were made in 1908 by A. J. Clarke, F. L. Kramer, and John Bedell. Clarke rode the half-mile, unpaced, against time, in 50 2/5 seconds, and the half-mile handicap in 51 1/5 seconds; Kramer rode the one-third mile handicap in 38 seconds, and the 25-mile competition in 57 minutes, 26 3/5 seconds; and Bedell rode 10 miles in competition in 20 minutes, 4 3/5 seconds. In professional tandem competitions (flying start), Kramer and Folger covered one mile in 1 minute and 51 seconds and two miles in 3 minutes, 46 2/5 seconds, and Mayer and Clarke covered five miles in 9 minutes, 50 3/5 seconds. The professional sprint championship was won by F. L. Kramer, who scored a total of 20 points. W. A. Bardgett was second, with 11 points. Hugh McClean won the professional paced championship with a total of 110 points, James F. Moran being second with 50 points. The 100-kilometre world's professional paced championship, held at Berlin, Germany, Aug. 2, was won by F. Ryser, whose time was 1 hour, 22 minutes, 3 seconds. The record for this distance, 1 hour, 34 seconds, was made by A. E. Wills, at Munich, Aug. 17, 1908. The six-day race, held in New York, in December, was won by MacFarland and Moran. Three teams, MacFarland-Moran, Rutt-Stol, and Hill-DeMara, were tied for first place, and a mile sprint was necessary to decide the winner. In this sprint MacFarland finished first, Rutt second, and DeMara third. The distance covered, 2,737 miles, 1 lap, broke the record of 2,733 miles, 4 laps, made by Miller and Waller in 1899. The twentieth annual twenty-five mile Irvington-Milburn road race was won by George Lockner, of Syracuse, N. Y., with a 4 1/2 minute handicap. In amateur competition, unpaced, P. Lawrence established a record for two miles of 3 minutes, 53 2/5 seconds, and H. McCormick made a record in the five-mile of 10

minutes, 31 seconds. Other new amateur records, all of which were made against time, were: $\frac{1}{4}$ -mile, 24 $\frac{4}{5}$ seconds, A. Crebs; $\frac{1}{2}$ -mile, 53 $\frac{1}{5}$ seconds, P. Lawrence; $\frac{3}{4}$ -mile, 1 minute, 23 $\frac{3}{5}$ seconds, P. Lawrence; 1-mile, 1 minute, 55 minutes, P. Giles; 2-mile, 4 minutes, 9 seconds, Giles; 3-mile, 6 minutes, 25 $\frac{3}{5}$ seconds, Giles; 4-mile, 8 minutes, 51 $\frac{2}{5}$ seconds, Giles; 5-mile, 11 minutes, 9 seconds, Giles. The amateur sprint championship was won by C. H. Stein, with 17 points; F. Hill being second, with 10 points.

CYPRUS. The third largest island in the Mediterranean, 60 miles from the coast of Asia Minor, 38 miles from the coast of Syria, and 238 miles from Port Said, at the entrance of the Suez Canal. Area, 3584 square miles. Population (1901), 237,022, including 182,739 Greek-Christians, 51,309 Mohammedans, and 2974 Armenians, Maronites, and members of other sects; in 1907, it was estimated at 249,250. The population of the principal towns in 1901 was: Nicosia, the capital, 14,752; Limassol, 8,298; Larnaca, 7,964; Famagusta, 3,825; Papho, 3,134; Kyrenia, 1,336. In 1906-7 there were 526 elementary schools with 27,049 pupils (5,364 Moslem), besides a gymnasium and high schools. Most of the elementary schools receive government aid. The products in 1906 were: Wheat, 2,384,504 bushels; barley, 2,731,199; oats, 355,002; vetches, 342,579 bushels. Other important products are silk cocoons, cotton, grapes, olives, linseed, carob-beans, wool, cheese, hides, and fruits. The cotton export in 1906-7 was 1,606,505 pounds; in 1907-8, 562,800 pounds. The export of wine in 1907 was 962,672 gallons, mainly to Egypt; of spirits, 49,882 gallons, mainly to Turkey. In 1906 there were 253,138 sheep, 248,439 goats, besides cattle, horses, asses, and mules. Copper and asbestos mines are worked. In 1907 the imports amounted to £702,893 (£194,074 from Great Britain), and the exports, £635,055 (£198,265 to Great Britain). There is a railway from Famagusta to Morphou, 61 miles. The inner harbor of Famagusta was made accessible to steamers in 1906. The island is nominally a Turkish possession, paying an annual tribute of £92,800 and 4,166,220 oke of salt to the Porte (1 oke=2.8 lbs.). The revenue in 1907-8 was £311,810; expenditures, £203,029. The deficit caused by the Turkish tribute is made good from imperial grants-in-aid (£28,000 in 1906-7) and loans. The garrison numbers 123; the police force, 778. The British High Commissioner in 1908 was Sir C. A. King-Harman. Riots having occurred as the result on the appointment of the Bishop of Kyrenia as Archbishop of Cyprus, martial law was proclaimed on April 10. The difficulty arose out of a disputed election and the appointment was very unpopular, but after the proclamation of martial law the trouble soon subsided. At the end of the year agitation for annexation by Greece was reported among the Greeks as a result of the Cretan proclamation of union with Greece.

DAHOMY. A French colony in West Africa, with about 70 miles of coast and an extensive hinterland northwards. In 1907 the districts of Fada, N'Gourma, and Say, comprising about 24,000 square miles, were transferred to the colony of the Upper Senegal-Niger (q. v.). The boundary line from the sea to the Niger, separating it from the British colony of northern Nigeria (q. v.), was determined by the

Anglo-French treaty of Oct., 1906. The area is about 60,000 square miles, and the population (1907), 635,971. The capital and chief trading centre is Porto Novo, 50,000 inhabitants. The principal agricultural products are maize, manioc, yams, and potatoes. In 1907 there were exported 60 tons of cotton. There is a ginning station at Abomey, another at Cotonou, and a third was erected by the Colonial Cotton Association at Savé. The industry is still in an experimental stage. The forests contain baobab trees, cocoanut trees, and oil palms. Palm-kernels and palm-oil are the principal exports. In 1907, imports amounted to 11,655,312 francs, and exports, 9,670,983; in the trade with France imports and exports amounted to 3,200,000 and 3,907,000 francs respectively. In 1908 there were 166 miles of railway open. Telegraphs extend as far as the Niger and Senegal, their length in Dahomey being over 1730 miles. The colony is administered by a Lieutenant-Governor, who is under the Governor-General of French West Africa (q. v.).

DAILEY, PETER F. An American comedian, died on May 23, 1908. He was born in New York City about 1863. In 1876 he appeared as a dancer at the old Globe Theatre, New York City; he then joined a travelling circus, as a clown, and shortly afterwards entered vaudeville. He played with the Howard Athenæum Company in 1878-81; later appeared in *Evangeline*; and for several years played under Augustin Daly's management. After appearing with May Irwin and James T. Powers and in leading rôles, in 1896 he joined Weber & Fields' Burlesque Company, with whom he remained during the next four years. He achieved great success in their burlesques of current plays, becoming especially well known for his peculiar attitude in extemporizing lines and humorous situations. He left Weber & Fields in 1900 to appear under Frank McKee's management, but rejoined them in 1901. Upon the breaking up of the Weber & Fields company in 1905, he was a star for a short time, and then went into vaudeville. In Jan., 1908, he joined Weber's company, and at the time of his death was appearing in Weber's burlesque of *The Merry Widow*.

DAIRYING. The number of milch cows in the United States on Jan. 1, 1909, was 217,000,000, an increase of 526,000 since Jan. 1, 1908. The average price per head in 1908 was \$32.36, in 1907, \$30.67. The total value of milch cows in 1908 was \$702,945,000, as against \$520,880,000 of the previous year. This increase in value was due to the natural growth of the dairy industry and to the improvement of the quality of the cows kept by dairymen. The value of dairy products had been constantly increasing for many years. In 1908 it amounted to nearly \$800,000,000. In some sections of the country dairying was not as profitable in 1908 as in some previous years, for the increase in the price of milk and milk products did not keep pace with the increase in the price of feeding stuffs. According to the report of the Secretary of Agriculture the wholesale milk prices at Chicago and New York, respectively, were 10.5 cents and 10.12 cents per gallon in 1899, 12.24 and 11.76 cents in 1905, 14.375 and 12.886 cents in 1907, and 15.16 and 16.63 cents in 1908. The mean factory price of Elgin butter was 19.66 cents in 1899, 28.5 cents in 1907, and 27.16 cents in 1908. The average price in New York for fancy, large,

colored cheese was 13.53 cents in 1908, and 13.99 cents in 1907.

In the United States there were about 6,000 creameries for butter-making, 5,000 cheese factories, 1,000 combined factories and centralizers, and 150 condensed milk plants. In Canada there were 575 creameries, 1,200 cheese factories, 540 combined factories, and 1,400 syndicates and syndicate factories. During 1908 there were exported from the United States 8,918,091 lbs. of butter, valued at \$1,884,244; 10,190,843 lbs. of cheese, valued at \$1,270,557; and milk to the value of \$1,997,689. During the same period there were imported 261,161 lbs. of butter, valued at \$73,384; 33,793,726 lbs. of cheese, valued at \$5,627,894; and milk valued at \$14,000.

The financial stress in the fall of 1907 affected dairy products much less than it did many other commodities. It reduced consumption to a slight extent, but there was a reduced production, so that prices were comparatively firm. The high price of feeds tended to reduce the profit of the milk producer who does not feed home-grown crops and, though the price of milk was much higher than ten years ago, it costs more to produce it because feed was higher and competent help was hard to get, while State and city health officials had become more exacting and require milk to be produced under sanitary conditions. These conditions were driving some dairymen out of business and caused others to reduce the size of their herds. In some respects this has been a gain to both producer and consumer. The producer in the past had kept too many "boarder" cows that did not produce enough milk to pay for their feed. The high cost of production compelled the dairyman to test his cows and weed out the poorest individuals. In many cases the herd left, though reduced in numbers, was affording the owner a larger profit than before. Again, the producer who had formerly bought a large proportion of his feed, was forced to cast about for crops that could be grown on his own farm, and many a dairyman discovered that at the prevailing prices the profit came from raising the crop rather than in feeding it out.

At the Tennessee Experiment Station it was found that a ton of soy bean hay yields 560 lbs. of beans and 1,440 lbs. of straw, can be produced for \$7.00, and has a higher feeding value for dairy cows than a ton of alfalfa hay which costs \$20-\$25 in the market. Cow pea hay was proved to be a cheap and valuable feed. These and other results obtained at a number of experiment stations demonstrated the advantage of feeding home-grown crops and agreed with the experience of practical farmers.

The consumer of milk, though paying more than formerly, is getting a purer product. Physicians and scientists were arousing public opinion as to the importance of having sanitary milk. It was generally accepted by physicians that tuberculosis was seldom, if ever, contracted by inhaling the bacilli. It is contracted by eating or drinking contaminated food products. Milk containing tuberculosis germs is probably the most common means of spreading this and some other diseases. It was demonstrated that tubercle bacilli will live in butter kept in cold storage under ordinary commercial conditions for 153 days. After remaining in butter 133 days, or in cheese 111 days, they are capable of causing fatal tuberculosis when injected into guinea pigs. Milk exposed to flies has been

found to contain many more gas-forming bacteria than when kept in a covered receptacle. Large numbers of these germs may excite acute diarrhoea in children. The necessity for the proper treatment of milk should be apparent to everyone, but there are still too many careless dairymen. The unsanitary barn and dairy-house, however, seems to be doomed, for the educational campaign for pure milk is driving the ignorant and careless dairyman out of business. The most radical step undertaken occurred in Chicago where every pint or pound of milk or milk products sold after Jan. 1, 1909, must be pasteurized or must come from cows that have successfully passed the tuberculin test.

There was a good supply of low grade dairy products, but there was a constantly increasing demand for first class butter, cheese, and sanitary milk. But it costs more to produce the quality demanded and prices were not thought likely to be as low for many years to come as they had been in the past. The demand for pasteurized milk necessitated some method for determining whether or not the milk had been so treated. Many tests were proposed, among them guaiac, orthol, ursol, methylene blue, formalin and other reagents, but the Storch method of using paraphenyldiamine was the test generally preferred in the United States. All of these methods were based on the fact that the reagents used produce colors when oxydase is present in milk. Heating destroys oxydase and in that case no reaction takes place. New methods have been devised for estimating the leucocyte and bacterial contents of milk. The determination of species of bacteria in milk is difficult, because many species are variable in form and character. The decimal system of recording the reaction of pure cultures of bacteria adopted by the American Society of Bacteriologists simplified this problem. At the experiment station at Geneva, N. Y., this system was used in studying the bacterial flora of cheddar cheese and the "pure cultures fell into their allotted places with mathematical precision."

At a conference called by the Commissioners of the District of Columbia the following classification of market milk was adopted: (1) The term "certified milk" should be limited to milk produced at dairies subjected to periodic inspection and whose products are subjected to frequent analysis (2) "inspected milk" should be limited to clean raw milk from healthy cows as determined by the tuberculin test and physical examination by a qualified veterinarian, (3) "pasteurized milk" should be applied to milk from dairies not able to comply with the requirements specified for classes 1 and 2 and should be pasteurized before being sold. Pasteurizing should not be the goal for which the dairyman should aim. It is better to keep the germs out than to kill them after they have contaminated the milk. Moreover, pasteurized milk if kept for some time may contain poisons formed by bacteria not killed by heating. The danger is often unsuspected, for such milk may not be sour. Evans and Cope, of the University of Pennsylvania, showed that poison-forming species are often destroyed even when milk is not heated; that raw milk is to some extent a germicide; and that pasteurizing should be looked upon as an evil necessity.

Many experiments have been made at the State stations with reference to the manufacture of butter and cheese. At the Wisconsin Experiment Station cheese made from pasteurized milk was of a more uniform flavor than when made from raw milk. Prof. Jensen, of Denmark, as a result of his investigations, expressed his opinion that the feed can influence the quality of the cheese, but that this influence is an indirect bacteriological one rather than chemical. The influence of feed on the quality of the product is probably of greater importance in cheese-making than in the manufacture of butter. Under the Pure Foods and Drugs Act all cheese made from curd that has been soaked in water must be labelled "soaked curd cheese." The Department of Agriculture demonstrated that butter made from pasteurized cream without any fermentation has superior keeping qualities; that by paraffining butter tubs there is less loss in weight than when tubs are untreated. Among the important works during the year are: *The Business of Dairying*, by C. B. Lane (New York); *Milk and Its Relation to the Public Health*, Bulletin No. 41. Hygienic Laboratory, Washington, D. C.

DALAI LAMA. See CHINA, *History*.

DAMS. (THE LAGUNA DAM on the Colorado) River, part of the Yuma irrigation project of the United States Reclamation Service, of which undertaking about 62 per cent. was completed in 1908, was being built for the purpose of furnishing water to the valley lands adjacent to the Colorado and Gila Rivers near Yuma, Arizona. The dam is located at Laguna, about 12 miles above Yuma, where the valley is a little less than a mile wide and where the discharge varies throughout the year between 4,000 and 100,000 cubic feet per second. No bed rock has been found here, so that the sand and silt must be used as a foundation upon which to build the structure. The dam proper consists of 3 concrete walls, 4,800 feet long, spaced 57 and 93 feet apart, and which extend from one bluff to the other on opposite sides of the river. The crest wall, which rests upon six inch sheet piling, 12 to 20 feet long, will be 19 feet above the bed of the stream, and thus raise the water level 10 feet, besides backing it up for a distance of ten miles, and forming a settling basin of 8 square miles area. The lower or apron wall is to be below ordinary low water, while the space between walls is to be filled in with stone, and covered with an 18 inch capping of concrete, the stone also being placed for a distance of 40 feet down stream. A pile trestle was to be carried across the openings between the completed ends when nearly finished, and from this rock will be dumped at low water to close up the gap, while the river will be diverted from the main channel through the by-pass sluice-ways that have been driven through rock at each end of the dam. Behind a protection thus built the gap will be closed in the main dam before a flood arrives. Such preparations for the closing of the river were completed Dec. 9, 1908, and the dumping of rock was begun. At noon, on Dec. 21, 1908, the river was entirely diverted, and the closure subsequently successfully withstood a flood in the river of 40,000 cubic feet per second.

PATHFINDER DAM. The Pathfinder Dam, which is part of the North Platte project of the United States Reclamation Service and of which 97.5 per cent. was completed in 1908, was one of the largest being built by the government. It is

located in Wyoming on the North Platte about 3 miles below its junction with the Sweetwater River, and 45 miles southwest of Caspa. At the site the canyon is 190 feet deep, only 80 feet wide at the bottom, and 180 feet at the top. The dam is built of cyclopean rubble masonry, is 218 feet high to the top of the parapet, 10 feet thick at the top, 94 feet at the base, was to be completed in 1909, and was designed to impound 326,000,000,000 gallons.

ROOSEVELT DAM. The Roosevelt Dam near Phoenix, Arizona, part of the Salt River project of the United States Reclamation Service, of which 75 per cent. was completed at the end of 1908, was one of the greatest structures of the kind in the world. It is 1,080 feet long, 284 feet high, with a maximum water depth of 242 feet, and provides storage for 1,284,000 acre feet. During the one month of Dec., 1908, 12,500 cubic yards of masonry were placed, bringing the acreage elevation up to 85 feet.

BELLE FOURCHE DAM. The Belle Fourche Dam on Owl Creek, South Dakota, a very large earth structure which was being built by the United States Reclamation Service, in connection with the irrigation project of the same name, and of which about 65 per cent. was completed in 1908. It was to be 6,500 feet long, with a maximum height of 115 feet. The earth body is adobe clay, which is deposited wet in 6 inch layers, and rolled. The total volume is 1,600,000 cubic yards and it was being handled by steam shovels, dump cars, dump wagons, and elevating graders.

PROPOSED SACANDOGA DAM. A dam and reservoir was proposed by the State of New York, for the Sacandoga River, near Conklinville, Saratoga County, which, if built, would flood some 40 square miles or an area nearly equal to that of Lake George, store 26,000,000,000 cubic feet of water, produce 50,000 H.P., and increase considerably the dry weather horsepower on the Hudson River below. The dam, constructed by hydraulic means, would be founded on fine sand, with a concrete core wall and sheet piling. By it the water would be backed up as far as Northville, flood a number of small southern Adirondack settlements, and about 4 miles of the Fonda, Johnstown & Gloversville Railroad.

The State of New York proposed to build a dam on the Genesee River at Portageville, just above Letchworth Park, to store 18,000,000,000 cubic feet of water, provide 32,000 H.P. and add 14,000 H.P. to that already developed at Rochester. In addition, it would prevent flood damage on the Genesee flats, and to property in Rochester, besides affording dry weather sewage dilution which would relieve the City of the expense of constructing a trunk sewer. The structure would be of concrete 160 feet high, 1,200 feet long on the crest, be curved in plan, and form a lake 15 square miles.

FAILURE OF THE HAUSER LAKE DAM. The Hauser Lake Dam on the Missouri River 18 miles below Helena, Mont., built of steel, failed on April 14, 1908 due to floods. Little damage was done other than that to the structure as the river passes through canyons for 28 miles below the site. It was estimated that the dam would take 6 months to rebuild and cost \$250,000. Borings for the rebuilding were begun later in the year. The failure was caused by the undermining of the foundation and the giving way of a section of the steel work, which gap in-

creased in size till it had reached a length of 500 feet. The proposed new dam was to be of concrete.

DAMS. It was stated that the great dam at Austin, Texas, which failed in 1900, might be rebuilt, and with that end in view diamond drills were put to work so that a correct idea of the material beneath the dam site might be obtained. The Cataract dam at Sydney, New South Wales, which was erected to increase the stored water supply, is constructed of cyclopean rubble principally, the blocks, weighing from 2 to 4½ tons, being set in mortar, and packed round with concrete. The following are the principal dimensions: Length, 811 ft.; height above river bed, 157 ft.; top width, 16½ ft.; bottom width, 158 ft.; maximum depth of stored water, 150 ft.; storage capacity, nearly 26,000,000 gals.; and cost, \$1,600,000.

DANBURY HATTERS' CASE. See **BOYCOTT.**

DANIELS, GEORGE HENRY. One of the most widely known railroad men in the United States, and an ex-general passenger agent of the New York Central Railroad, died at Lake Placid, N. Y., on July 1, 1908. He was born at Hampshire, Ill., on Dec. 1, 1842, and from the age of fifteen until his retirement from active service in May, 1907, devoted his entire business life to railroading. He was, in turn, in the engineering corps of the North Missouri Railroad, general freight and passenger agent of the Chicago and Pacific Railroad, general ticket agent of the Wabash, St. Louis and Pacific Railroad, commissioner of the Iowa Trunk Line Association, commissioner of the Colorado Traffic Association and Passenger Committee, later merged into the Central Traffic Association, which he served as vice-chairman, and chairman of the Chicago Eastbound Passenger Committee. In 1899 he was appointed general passenger agent of the New York Central Railroad, where his administration was marked by greatly improved traffic facilities and the introduction of many effective reforms and innovations in the way of advertising.

DANISH ANTILLES. See **DENMARK.**

DANISH COLONIES. See **DENMARK.**

DANISH WEST INDIES. See **DENMARK.**
Danish Colonies.

DARTMOUTH COLLEGE. An institution of higher learning at Hanover, N. H., founded in 1769. The attendance in 1907-8 was 1,217. In the autumn of 1908 it showed a still further increase, 1,233. During the year 1907-8 the new medical laboratories were completed and added to the college plant. Another large dormitory, accommodating more than 100 men, was completed and put to use. The dormitories of the college now accommodate more than 1,000 men. Rollins Chapel was extensively remodelled, with a marked increase in size, and now has a capacity of about 1200. The endowment of the college is between two and three million dollars. The library contains something more than 100,000 volumes. The president, William J. Tucker, who had tendered his resignation in 1907, retained his position in 1908.

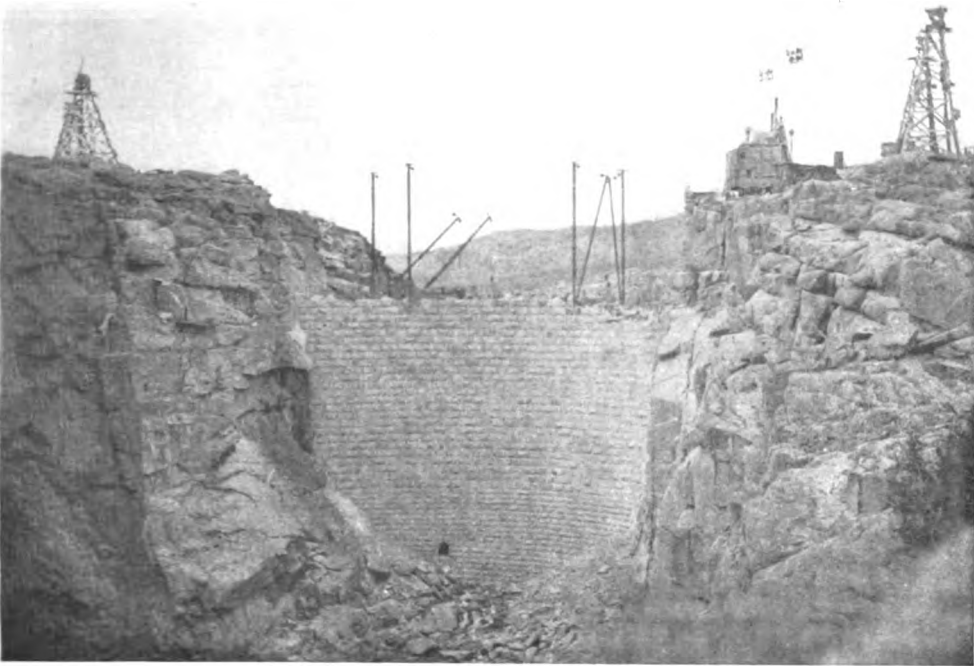
DARWIN MEMORIAL. In commemoration of the fiftieth anniversary of the publication of the joint paper on the "Tendency of Varieties to Depart Indefinitely from the Original Type" by Darwin and Wallace, before the Linnean Society

of London, the Society held, on July 1st, 1908, a special meeting at which a specially prepared gold medal was given to Wallace, and copies of this medal in silver were awarded to Sir Joseph Hooker, Prof. Ernst Haeckel, Edouard Strasburger, Aug. Weismann, Francis Galton, and Sir E. Ray Lankester. Addresses were made by Wallace, Lankester, and others. In referring to recent controversies over the doctrine of natural selection, Lankester said, "Not only do the main lines of the theory of Darwin and Wallace remain unchanged, but the more it is challenged by new suggestions and new hypotheses, the more brilliantly does the novelty, the importance, and the permanent value of the work of these great men—show forth as the one great and epoch making effort of human thought on the subject." Similar commemorative exercises to celebrate the 100th anniversary of Darwin's birth and the 50th of the publication of the *Origin of Species*, were planned for 1909.

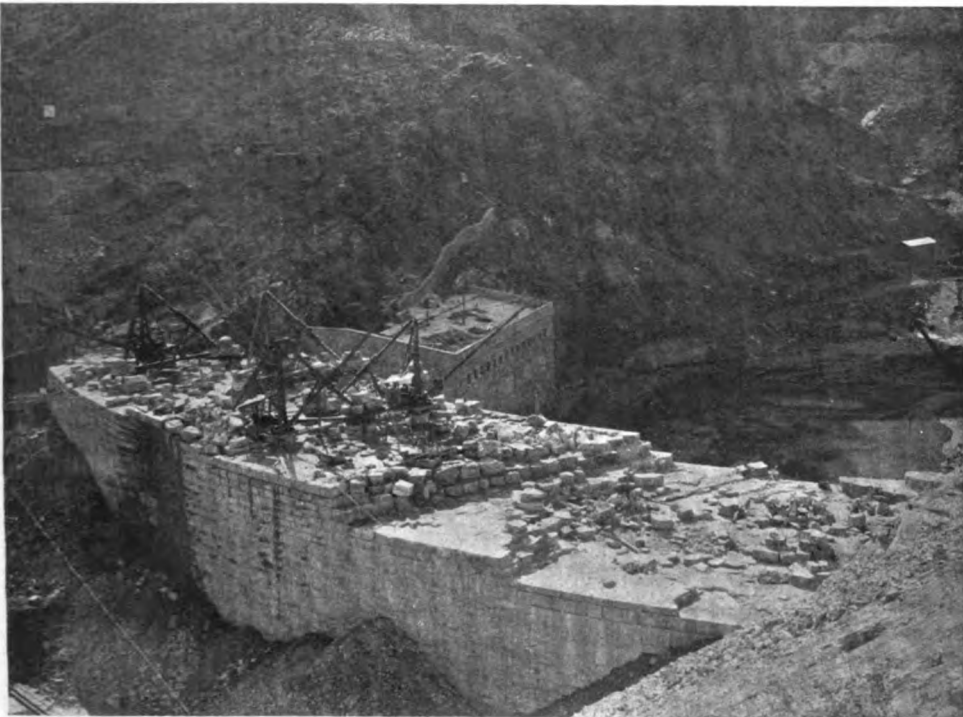
DAVIS, CHARLES ABBOTT. An American naturalist, died on Jan. 29, 1908. He was born on Mar. 24, 1868, in Burlington, Vt., and graduated at the Polytechnic Institute, Worcester, Mass. After teaching in Wilmington, Del., Atlanta, Ga., in the Connecticut State Agricultural College, at Storrs, and for nine years in the Technical High School in Providence, he became, in 1904, curator in the Roger Williams Park Museum, at Providence, R. I., a position he occupied at the time of his death. He was a member of several of the scientific societies, and was a naturalist of recognized authority.

DEATH RATE. See **VITAL STATISTICS.**

DEBS, EUGENE VICTOR. An American labor leader, presidential candidate of the Social Democratic party in 1900 and of the Socialist party in 1904 and 1908. He was born at Terre Haute, Ind., on Nov. 5, 1855, was educated in the common schools, and at the age of sixteen became a locomotive fireman on the Terre Haute and Indianapolis Railroad. From 1875 to 1879 he was in the wholesale grocery business, and in the latter year was elected city clerk, which position he filled until 1883. In 1885 he was elected member of the Indiana State legislature. He was grand secretary and treasurer of the Brotherhood of Locomotive Firemen from 1880 to 1893; president of the American Railway Union from 1893 to 1897; and chairman of the national council of the Social Democracy from 1897 to 1898. In 1900, as candidate of the Social Democratic party for president, he polled a popular vote of 87,814. While serving as president of the American Railway Union, he successfully managed the strike on the Great Northern Railroad. In 1894 he managed a general strike on the western railroads, and was charged with conspiracy, but was acquitted. He was then charged with violating an injunction and committed to jail for six months in contempt of court. In 1904 and again in 1908 he was the candidate for president of the Socialist party, receiving in the former year a popular vote of 402,283 and in the latter year of about 482,000. Mr. Debs has contributed extensively to the popular literature of socialism and has been an earnest agitator in behalf of the cause, arousing much enthusiasm on the part of his followers, and the respect of many not at all in sympathy with the movement.



PATHFINDER DAM, LOOKING UPSTREAM, NORTH PLATTE PROJECT, NEBRASKA AND WYOMING



THE ROOSEVELT DAM OF THE SALT RIVER IRRIGATION PROJECT, ARIZONA

DAMS

U.S. D.A.

1911

DEBUSSY, ACHILLE CLAUDE. A French composer. He was born in St. Germain-en-Laye, on August 22, 1862. He studied music at the Paris Conservatory, where he won the Prix de Rome for composition in 1884. His music-drama *Pelléas et Mélisande*, founded on Maeterlinck's play of the same name, was first produced in Paris in 1902. In March, 1908, it was produced at the Manhattan Opera House, New York City, with Mary Garden (q. v.) as *Mélisande*. She had created the part in the Paris production. Debussy's shorter works include several suites and other compositions for piano and for orchestra, and numerous songs. Although his earlier compositions are quite orthodox, he has in recent years followed a harmonic system—or rather lack of it—of his own. The universally accepted theory of harmony among civilized nations is based on the chromatic or half-tone scale. Debussy bases his harmonies on a whole-tone scale. His system has been criticised on the ground that it abjures melody, and defies every existing tradition concerning key relationship, chord-formation, and harmonic progression. On the other hand his work has many enthusiastic admirers among cultivated lovers of music.

DELAWARE. One of the States of the North Atlantic Division of the United States and one of the thirteen original States. The area of its land surface is 1,965 square miles and its water surface, 405 square miles, or a total of 2,370 square miles. In 1900 the population of the State was 184,700, and according to a Federal estimate of 1908 it was in that year 197,728. The capital is Dover. The population of Wilmington, the largest city, was estimated in 1908 at 85,000.

MINERAL PRODUCTION. The mineral products of Delaware are relatively unimportant. The output of clay products holds the highest place in mineral production. This amounted in 1907 to the value of \$190,440, a decrease of \$47,328 in the value of the product of 1906. Stone was produced in the State in 1907 to the value of \$58,192. This was entirely granite. Mineral water was produced in the State in 1907 for the first time, one spring near Wilmington reporting a large output. Among other products are coal tar, illuminating gas, gas coke, sand and gravel, and sand lime brick. According to the figures given by the United States Geological Survey, from whose reports the statistics given above are taken, the total value of the mineral production in the State in 1907 was \$431,438 as compared with a value in 1906 of \$814,126.

AGRICULTURE AND STOCK RAISING. The area of the State given up to agricultural products is comparatively small, but the acreage of the principal crops is notably large. The acreage, production, and value of the principal crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 6,240,000 bushels, valued at \$3,682,000 from 195,000 acres; winter wheat, 1,725,000 bushels, valued at \$1,725,000 from 115,000 acres; oats, 119,000 bushels, valued at \$64,000 from 4,000 acres; rye, 16,000 bushels, valued at \$13,000 from 1,000 acres; buckwheat, 30,000 bushels, valued at \$22,000 from 1,000 acres; potatoes, 656,000 bushels, valued at \$544,000 from 8,000 acres; hay, 125,000 tons valued at \$1,562,000 from 544,000 acres. Owing to its proximity to large cities and to its climate, the State is well

suited to market gardening. Delaware produces annually about 20,000,000 quarts of berries, and apple growing has become the most profitable branch of fruit growing in the State. The canning industry is an important feature in the agriculture of the State. The number of farm animals has remained constant in recent years. The estimated value of the wool clip in 1908 was \$10,395.

MANUFACTURES. A comparison of the industries carried on in factories in 1900 and 1905 showed that in 1905 there were reported 631 such establishments, with \$50,925,630 capital, employing an average of 18,475 wage-earners, and having products valued at \$41,169,276. Of these four items the first and last were slightly less than the corresponding numbers for 1900; the number of wage-earners was 10.0 per cent. less, and the amount of capital invested was 31.3 per cent. greater. Of the wage-earners in 1905, 2,960 were women at least 16 years of age, and 649 were children under 16. The value of output of the leading industries was as follows: Leather, tanned, curried, and finished, \$10,250,842; railway shop work, \$3,599,736; foundry and machine shop products, \$3,432,118; paper and wood pulp, \$1,904,556. These industries showed little change during the five years 1900-1905. Iron and steel products, however, fell in value from \$3,159,641 in 1900 to \$1,597,309 in 1905. Other industries in 1905 were iron and steel ship-building, flour and grist mill products, and canning and preserving fruits and vegetables. The city of Wilmington was credited with \$30,390,039 of the value of products in 1905. This city embraced all of the two leading industries and almost all of the others mentioned above.

FINANCE. The report of the State Treasurer for the fiscal year 1907 showed a balance in the treasury on Jan. 9, 1907 of \$87,696. The receipts for the fiscal year ending Jan. 14, 1908, were \$1,017,336 and the disbursements, \$986,876, leaving a balance on Jan. 14, 1908 of \$118,157. The receipts were made up of the following funds: The general fund, \$576,219; school fund, \$179,504; sinking fund, \$261,612. The chief receipts from the general fund were from the State tax from licenses and fees, and from sales of bonds. The chief disbursements were for public schools, the Delaware State Hospital, general appropriations, and for colleges of agricultural and mechanical arts. The public debt on Jan. 14, 1908, amounted to \$816,785.

FISHERIES. The fishing industry in 1908 made a much better showing than in 1906-7, when it was largely a failure from a financial standpoint owing to the scarcity of shad. In 1908 there was a much better run of shad and high prices prevailed throughout the season. The value of those taken for the year 1908 approximates \$100,000. The value of the oysters taken was 20 per cent. higher than in 1906-7. The value of the production of the menhaden industry for 1908 was \$285,000 as against \$160,000 in 1907. From 300 to 400 men are employed in this industry.

POLITICS AND GOVERNMENT. There was no meeting of the State legislature in Delaware in 1908. The local option election held in Nov., 1907, resulted in Kent and Sussex counties voting for prohibition, which took effect immediately upon the official announcement of the result. On Jan. 4th, suit was begun by the liquor interests in Wilmington to test the law under

which the special election was held, and the law was sustained by the court.

CONVENTIONS AND ELECTIONS. The Republican State Convention met at Dover on April 7. Opposition developed to an attempt to endorse William H. Taft for President and the Convention finally decided to give no instructions. The Democratic State Convention met at Dover April 14th. The delegates elected were instructed to present the name of Judge George Gray at the National Democratic Convention at Denver, and in spite of the emphatic objections of Judge Gray, these instructions were given. The Convention adopted resolutions condemning the Republican party for the usurpation of power. In the election of Nov. 3, the vote for the National ticket was as follows: Taft, 25,014; Bryan, 22,071; Chafin, 670. S. H. Pennewill, Republican, was elected governor by about 2,000.

STATE OFFICERS. Governor, Simeon H. Pennewill; Lieutenant-Governor, John M. Mendinhall; Secretary of State, D. O. Hastings; Treasurer, David O. Morse; Auditor, Theo. F. Clark; Attorney-General, Andrew C. Gray; Adjutant-General, I. P. Wickersham; Commissioner of Insurance, Chas. H. Maull—all Republicans, except Gray, Democrat.

JUDICIARY. Supreme Court: Chancellor, John R. Nicholson, Dem.; Chief Justice, Chas. B. Lore, Dem.; Associate Justices, Ignatius C. Grubb, Dem.; W. C. Spruance, Rep.; James Pennewill, Rep.; William H. Boyce, Dem.; Clerk, Walter Pardoe, Rep.

The legislature of 1909 is composed of 11 Republicans and 6 Democrats in the Senate, and 17 Republicans and 18 Democrats in the House. The Congressional representation will be found in the article UNITED STATES, section *Congress*.

DELCASSÉ, THÉOPHILE. See FRANCE, *History*.

DENMARK. The smallest of the Scandinavian kingdoms. Area, exclusive of dependencies, 15,385 square miles; population (1906), 2,605,268 (1,265,788 males and 1,339,480 females), of whom 426,540 lived in Copenhagen, 1,037,685 on the islands, 1,124,694 in Jutland, and 16,349 on the Faroe Islands. In 1907 there were 20,103 marriages, 76,151 births, 39,089 deaths, and 7,890 emigrants. The principal cities, with their populations in 1906, are: Copenhagen, the capital, 426,540 (with suburbs, 514,134); Aarhus, 55,193; Odense, 40,547; Aalborg, 31,509; Horsens, 22,237; Randers, 20,963.

EDUCATION. In 1906 there were 2,940 elementary schools with 341,356 pupils. Secondary schools have over 55,000 pupils. There are also people's high schools, technical, commercial, and agricultural schools, a veterinary and agricultural college, a college of pharmacy, a Royal academy of arts, a polytechnic, etc. The University of Copenhagen has about 2,000 students.

PRODUCTION. The soil is subdivided into numerous small farms. About 35 per cent. of it is arable, 35 per cent. pasture and meadows, 6 per cent. forest, 3 per cent. peat bogs, and the remainder unproductive. In 1906, the chief crops were as follows, in hectolitres (1 hectolitre = 2.838 U. S. bushels): Wheat, 1,465,923; barley, 7,768,714; oats, 14,156,709; rye, 6,632,009; mixed grain, 4,651,205; potatoes, 10,025,393; beets and other root crops, 96,883,060. The sugar-beet production in 1907-8 was 380,000 metric tons; in 1908-9, 460,000 tons. The production of oats in 1907 was 40,000,000 bushels; of wheat, 4,000,000 bushels. The home production of wheat

and rye is insufficient; in 1907 there were consumed 341,500 sacks of imported flour of 220½ pounds each. In 1903, there were 486,935 horses, 1,840,466 cattle, 876,830 sheep, and 1,456,699 pigs. Dairy products are exported on a large scale, chiefly to England. In 1907, the export of butter amounted to 220,550,000 pounds, of which 188,980,000 pounds were of Danish origin, and the remainder, about 14 per cent. of the total, was almost entirely Siberian butter re-exported. Eggs were exported in 1907 to the amount of 35,000,000 dozen, nine-tenths of the amount being domestic produce. Laborers from Russian Poland and Galicia come every year to work on the farms; in the spring of 1907 there were 6,647 Polish season laborers, 5,000 of them on the islands and 1,648 in Jutland. There are in the country 30 flour mills ranging from 300 to 1,000 barrels daily capacity, besides numerous smaller ones. The number of tanneries and their output has decreased in recent years. In 1907 there were some 70 tanneries, employing 520 men. The production of beet-sugar, carried on by two companies in seven factories, amounted to 50,000 tons in 1907-8 and 64,000 tons in 1908-9. In the year ending Aug. 31, 1908, there were 77,644 cotton spinning spindles, the mill consumption of cotton during the year being 11,255 bales. The yield of fisheries in 1905 was valued at 11,422,273 kroner.

FOREIGN COMMERCE. The imports and exports (special trade) in 1907 amounted to 681,129,000 and 416,863,000 kroner respectively, against 559,328,000 and 393,512,000 in 1906 (1 kroner = 26.8 cents). The general trade in 1907 comprised 788,868,000 kroner of imports and 604,922,000 of exports, against 725,626,000 and 559,508,000 in 1906. In the special trade of 1907 the principal imports were: Cereals, 54,582,000 kroner; cotton seed and oil cakes, 52,189,000; coal, 46,795,000; iron and steel manufactures, 35,124,000; timber and lumber, 29,428,000; woolen tissues, 21,374,000; cotton and other vegetable tissues, 20,090,000; boats, 13,938,000; hides and skins, 10,015,000; iron, 9,704,000. The principal exports in the special trade of 1907 were: Butter, 469,075,000 kroner; meats, 107,227,000; live animals, 36,781,000; eggs, 26,540,000; hides and skins, 11,671,000; boats, 9,624,000; fish, 7,847,000; iron manufactures, 5,706,000; barley, 5,230,000. The general trade with the principal countries of origin and destination in 1907 was as follows, in kroner:

From and to	Imports	Exports
Great Britain	135,008,000	311,774,000
Germany	257,837,000	129,392,000
Sweden	67,173,000	53,071,000
Norway	13,655,000	18,500,000
Russia	76,469,000	35,390,000
Netherlands	22,918,000	1,010,000
Belgium	9,925,000	1,841,000
France	17,278,000	1,160,000
United States	124,128,000	27,398,000

On Jan. 1, 1909, the new tariff was to come into force. It was a compromise between the out and out free traders and the protectionists.

COMMUNICATIONS. The tonnage entered and cleared in the foreign trade in 1907 was 3,864,426 and 1,256,195 respectively; in the coasting trade, 1,621,908 and 1,604,323. The

merchant marine on Jan. 1, 1908, consisted of 3266 sailing vessels, of 121,217 tons, and 641 steamers, of 402,003 tons. The railways in operation at the end of 1906 had a length of 2,082 miles, of which 1,167 miles belonged to the State. The State telegraph lines aggregated 2,318 miles.

FINANCE. The revenue and expenditure in 1906-7, ending Mar. 31, were 127,018,791 and 113,833,493 kroner respectively; in 1907-8, 94,499,771 and 94,119,618. The budget for 1908-9 estimated the revenue at 94,054,240 kroner, and the expenditures at 101,322,269. The principal estimates of revenue for 1907-8 were: Interest and profit on State assets, 6,406,486; direct taxes, 15,161,000; indirect taxes, 64,306,100. The expenditures were: Civil list, 1,155,200; public debt, 8,340,658; worship and public instruction, 11,834,693; interior, 11,013,044; war, 13,252,329; marine, 8,290,902; capital expenditure on public works, railways, etc., 16,213,269. The public debt stood on Mar. 31, 1908, at 255,933,203 kroner. The State assets on the same date consisted of: Surplus in treasury, 50,161,018 kroner; emergency reserve fund, 17,896,740; State railways, 221,506,211; royal castles and estates, 244,600,000; forests, 28,000,000; various, 100,175,964; total, 662,339,933.

ARMY AND NAVY. The army is a sort of national militia, in which all citizens between the ages of eighteen and thirty-nine years are obliged to serve, except the inhabitants of Iceland, the Faroe Islands, and the Danish Antilles. Very few exemptions are allowed in Denmark, even the clergy having to serve five years. The initial period with the colors is six and one-half months in the infantry, twelve months in the field artillery, and nineteen months in the cavalry, with two subsequent periods of twenty-five days each. The recruits are usually called up at the age of twenty-two and spend eight years in the army and eight in the territorial reserve. The peace strength of the army is about 14,000 men of all ranks. The infantry is equipped with the Krag-Jorgensen rifle, the cavalry with the Remington carbine, and the field artillery with a Krupp shielded gun. A new machine gun known as the Rekyl (Madsen type) was adopted in 1908. It weighs only about 17½ pounds, is carried and used by one man, comes into action quickly and without attracting attention, and fires at the rate of 300 rounds per minute. The effective navy consisted at the beginning of 1908 of 4 coast defense vessels, 12,500 tons; 4 protected small cruisers, 6,900 tons; 13 torpedo boats, 1,422 tons; total, 21 ships, of 20,822 tons, with 267 officers and 1,137 men. In 1907 there was a decrease of 14,190 in effective tonnage.

GOVERNMENT. The King is Frederick VIII., born June 3, 1843; succeeded his father, Jan. 29, 1906. The premier of the cabinet formed Oct. 12, 1908, is N. T. Neergaard.

DANISH COLONIES. The colonial possessions of Denmark consist of the island of Iceland, with an area of 40,456 square miles, of which 16,242 are inhabited, and a population of 78,470 in 1901; the island of Greenland, with an approximate area of 835,848 square miles, of which 34,000 are free from ice, and a population in 1901 of 11,895 (309 Europeans); and the Danish Antilles, consisting of St. Croix, 84 square miles and 18,590 inhabitants in 1901; St. Thomas, 33 square miles and 11,012 inhabitants; and St. John, 21 square miles and 925

inhabitants. The inhabitants of the Danish Antilles are mostly free negroes engaged in the cultivation of sugar cane. The trade of Greenland is a State monopoly, and its exports, like those of Iceland, consist largely of fish and fish products. In 1907 the trade of Denmark, with its colonies, was as follows: Imports from Iceland, 6,096,000 kroner; and exports to it, 5,140,000; imports from Greenland, 1,119,000, and exports to it, 492,000; imports from Danish Antilles, 24,000, and exports to them, 30,000. Iceland has a local legislature, the Althing, consisting of 34 elected members and 6 appointed by the King. A minister for Iceland, appointed by the King, resides at Reykjavik, the capital of the island.

HISTORY.

RELATIONS WITH ICELAND. During the King's visit to Iceland in 1907 a commission was appointed, consisting of members of the Danish Rigsdag and the Icelandic Althing, to determine the future relations of Denmark and Iceland. It presented a report on May 14, in the form of a draft of a new law which required the approval of the respective parliaments of the two countries. It declared Iceland a self-governing, free and independent country, forming with Denmark the United Danish Empire, having in common the kingship, the Ministry of Defense, and the Ministry of Foreign Affairs. At home the Icelanders will fly their own flag, but the war and commercial flags are to be in common. Equal rights are to be enjoyed in both countries. The Icelandic treasury will contribute toward the government's civil list. Concessions were made to Iceland in regard to the inspection and nationalization of the fisheries, and a separate Supreme Court was established in the island. The Danish treasury was to pay to Iceland the sum of 1,500,000 kroner. The members of the commission differed as to the right of either party to denounce the common arrangements, the Danish member holding that this right should extend to everything except the common kingship. The Icelandic elections gave the victory to the opposition, who wished the only tie between the two countries to be the common kingship. The Danish parliament dissolved without taking any action on the project.

NEW ELECTORAL LAW. A compromise was reached on Jan. 10, 1908, between the Left Reformists and the Liberal Conservatives in the Rigsdag, on the question of electoral reform. This paved the way for the passage on April 20 of a new measure providing for the extension of suffrage to women in municipal elections. The chief points in the new law were as follows: The right to vote in municipal and communal elections, and for the election of commissions of tax assessment and distribution is bestowed on all persons of either sex, 25 years of age or over, who have not suffered punishment for infamous crime, who have lived two years in the same district, paid taxes, and not received poor relief (or if they have received it have paid it back); *the scrutin de liste* and proportional representation; women to have the right to vote for the general councils as soon as they become property owners in the department. It was estimated that the effect of the new law would double the number of the electors, bringing it up to 900,000, including 300,000 married women, 50,000 independent unmarried women, and 30,000 domestics.

OTHER NEW LAWS. The compromise on Jan. 10 put an end to the differences between the government party and the Conservative groups, which, although the government had a majority in the Folkething, had prevented its getting its measures through hitherto. The more liberal portion of the Conservative group aided the government in its reform programme, and it succeeded in passing not only the important electoral law above mentioned, but the law on customs duties (May 5) and that on judiciary reform (May 16). The new customs law increases relatively the duties on articles of luxury, including tobacco and wine, and lowers those on articles of prime necessity, such as coal and petroleum. It was the result of the compromise between free traders and protectionists. It gives a certain measure of protection to the trades and industries. The Socialists finally supported the law, though at first their counsels were divided, for they wished on the one hand to avail themselves of the protection which the law afforded to manual labor, and on the other to win over to their party the agricultural laborers. The law did not make any radical change in policy but it diminished the public revenue, which was made up by increasing the duty on alcohols and the succession duties. The latter now have a progressive character, the principle of a progressive tax being for the first time introduced in Denmark. The law reforming the judiciary, which does not become operative for some years, provides for the publicity of judicial proceedings and the predominance of oral procedure and introduces a jury system in criminal and political trials. These changes had been promised by the constitution of 1849 but were always deferred. The constitution also promised the separation of judicial and administrative powers, but this was never fully carried out on account of the expense, and except in the principal cities, the judges in the first instance will continue to perform certain police functions. Among the other measures was that on illegitimate children, requiring the father to pay three-fifths of the child's support, and in case of the mother's death, to pay for its entire support until the child reaches the age of eighteen, or in certain cases, seventeen years.

FOREIGN AFFAIRS AND THE DEFENSE QUESTION. International friendship was promoted by royal visits during the year. The Swedish King, the King and Queen of England, and the President of the French Republic visited Copenhagen. In its foreign policy, Denmark plays merely a passive rôle. By special friendliness to Germany, she has hoped to gain a more lenient treatment of the Danish inhabitants of Schleswig under Prussian rule, but in this has met with slight success. The policy of Germany toward the Danes of Schleswig has been criticised in Denmark as dictated solely by a desire to maintain the leadership of the German Empire. Denmark was a party to the convention signed at St. Petersburg on Apr. 23, which provided for the preservation of the status quo in the Baltic. (See GERMANY, paragraphs on *History*.) On the same day it subscribed to the parallel agreement signed at Berlin, which dealt with the maintenance of the status quo in the North Sea. The question of defense had been before the country for several years. A special Parliamentary Commission, after having the matter under consideration for six years, showed itself divided in opinion, one side favoring the forti-

fication of Copenhagen, and the other opposing it. Between these extremes, the Reformist party offered as a solution of the problem the destruction of the fortifications of Copenhagen on the landward side, except some permanent works, and the extension of the coast fortifications and the development of the navy. A novel entitled *The Day of Judgment* caused much comment on the question of national defense by its picture of an imaginary German invasion resulting in the capture of the King and the destruction of Danish independence. On July 25, the Crown Prince expressed himself strongly for fortification both by sea and land and his views were widely applauded, but the King's references to the subject were of a guarded nature.

THE MINISTRY AND THE ALBERTI AFFAIR. In the spring the Cabinet lost a valuable member in M. Lassen, Minister of Finance. For a time, the Premier, M. Christensen, held the portfolio of Finance, and it was then that he put through the customs law with some reduction of the wine duty in order to satisfy the claims of France. M. Alberti (q. v.), the Minister of Justice, had been severely criticised for certain financial dealings as well as for his high-handed administration of his office. He was useful to the Ministry through his active efforts in putting through the measure for the reform of the judiciary and this improved his position, but at length the Premier, finding it no longer advantageous to retain him, caused his retirement. He was succeeded by M. Høgsbrø, the Minister of Ways and Communications, who in turn was succeeded in that office by M. Jensen-Sønderus. M. Ole Hansen resigned from the Ministry of Agriculture and was succeeded by M. Anders Nielson, the leader of the Reformists. On Sept. 8, M. Alberti gave himself up to the authorities admitting malversation and fraud. It was found that he had embezzled a sum estimated at \$4,000,000 and affecting two concerns which had been managed by him, the Zealand Peasants' Savings Bank and the Butter Exportation Company. A hue and cry was started by the newspapers and the affair was called the "Danish Panama." M. Alberti had distinguished himself by his intelligence, energy, and ambition, but his methods had inspired the distrust of many, and he had already been the subject of much criticism. He was the son of a well known member of the Left, who organized the Zealand Peasants Savings Bank. He became a Director of the Bank and in 1889 entered the Butter Exportation Company. About the same time he was elected to the Folkething. Though not liked, he had to be reckoned with as a man of force, and he was appointed to the Ministry of Justice in 1901, and later held the same portfolio in the Christensen Ministry. His financial enterprises were unsuccessful, and he speculated and undertook various doubtful enterprises, running heavily into debt. As Minister he was accused of abusing his power, of favoritism and of arbitrary conduct, and during the past year had been attacked violently both in the press and in the Rigsdag. In order to cover the deficit of the Savings Bank, he deposited a false receipt from the Copenhagen Bank for several millions. M. Christensen, personally honest, and of unsullied reputation, thought at first that he need not resign, but he was held responsible in public estimation in that he had paid no attention to the criticism of Alberti, but on the contrary had procured a favor for him from the King on the occasion of his

resignation from the Ministry. He had, moreover, loaned on security as Minister of Finance, a considerable sum to the Savings Bank. Though he was still trusted by the Reform Left, the strongest party in the Rigsdag, it appeared from the debate after the reassembling of Parliament on Sept. 28, that the retirement of the Ministry was necessary. M. Neergaard, Minister of Finance, a distinguished economist and leader of the Moderate Left, was charged with the formation of a new Ministry. On Oct. 11 he presented his list. Four members of the old Cabinet remained and the new members were as follows: Count Ahlefeldt-Laurvig, Minister of Foreign Affairs; M. Braun, Minister of Finance; M. Bernstein, Minister of the Interior. M. Neergaard himself assumed the Ministry of National Defense. The succeeding Ministry, like the former one, was Agrarian in spirit. M. Christensen became the leader of the Reform party. The programme announced by the Ministry included a statement that Denmark must be placed in a situation to defend her neutrality and command the same degree of military strength as other nations of her class, and that the government would soon propose measures to that end, based on the report of the Commission of Defense.

DEPOSIT GUARANTEE. See BANKS AND BANKING.

DERBY, FREDERICK ARTHUR STANLEY, Earl of. See STANLEY, FREDERICK ARTHUR.

DEVONSHIRE, SPENCER COMPTON CAVENDISH, Eighth Duke of. An English statesman, died at Cannes, France, on Mar. 24, 1908. He was born in London, on July 23, 1833, graduated at Trinity College, Cambridge, in 1854, and was returned to Parliament for the Northern Division of Lancashire, in 1857. A year later, upon the succession of his father to the dukedom, he became Marquis of Hartington, by which title he was known until in 1891 the death of his father made him the Eighth Duke of Devonshire. In the spring of 1863 he became Lord of the Admiralty, and a few months afterward he was transferred to the office of Under Secretary of War. In 1866-68 he was Secretary of State for War. At this time he was supporting firmly, if not enthusiastically, Mr. Gladstone's Irish Church disestablishment policy, and he was defeated in the Northwestern division on that issue in 1868. But he was returned in the following year from the New Radnor district, which he continued to represent until 1880. He became Postmaster-General in Mr. Gladstone's Cabinet in 1869, and in 1871 he was made Irish secretary. In 1869 he presided over the parliamentary inquiry into the election frauds of 1868, and in 1870 he introduced an election reform bill which, however, did not become a law until two years later.

As Irish Secretary, Lord Hartington showed much firmness in dealing with the Fenian faction. As temporary leader of the opposition in the Commons during Mr. Gladstone's absences in 1874, he declared himself to be unreservedly in favor of an imperial policy in dealing with the Home Rule question. Just before the meeting of Parliament in 1875 he was formally chosen leader of the Liberal opposition, a post which he held for the next five years; and in this capacity he warned the Irish members that "exceptional legislation" would be continued as "long as organized crime and coercive intimidation" existed. In 1880 he was returned from

Northeastern Lancashire (which he continued to represent until 1885), and in the same year Queen Victoria offered him the premiership, but he declined the office in favor of Mr. Gladstone and entered the cabinet as Secretary of State for India. This portfolio he held until 1882, when he became Secretary of War, a post he held until 1895. From 1885 until 1891 he represented the Rossendale Division of Lancashire. He denounced the annexation of the Transvaal and defended the evacuation of the Sudan, and as Secretary of War addressed to the House an elaborate explanation and apology for the delays which caused the Khartoum expedition to be too late to rescue Gordon. He refused, however, to countenance the scheme by which the Home Rule bill was to be "hung up," and it was on his motion, and largely through his influence, that the bill was defeated on its second reading. In the campaign he assailed the "separatist" policy, and denounced what he considered evasion and concealment on Mr. Gladstone's part, and upon the defeat of the Liberals, Salisbury suggested Hartington for the premiership. Hartington, however, refused this offer, and even declined a portfolio in Salisbury's cabinet, because of his unwillingness formally to ally himself with the Conservatives. But in the Parliament of 1886-92 he steadily supported the government, working meanwhile to bring about the electoral solidarity of the two factions of the Unionists, the effect of which at the next elections was the reduction of the Gladstonian majority to only forty, a margin much too small for working purposes.

Upon the death of his father, in 1891, he entered the House of Lords, as the Duke of Devonshire, and after the formation of Gladstone's fourth and last ministry, in 1892, he formally supported Lord Salisbury, protesting against the "conspiracy of silence" on the Home Rule bill, and opposing that measure on the ground that it would create a popularly controlled administration not answerable to Parliament. He moved the rejection of the Second Home Rule bill in the House of Lords, and was supported by a majority of more than ten to one. In 1895 he openly allied himself with the Conservatives by accepting the office of Lord President of the Council in Lord Salisbury's cabinet, and he afterward became president of the Council of Imperial Defense. Although he continued to assert his confidence in the theory of free trade, he accepted, in a general way, Mr. Chamberlain's economic conception of what the British Empire should be, and conceded that that scheme must be worked out along commercial lines. But he opposed the idea of a general tariff, or any system favorable to the colonies which involved taxation of food supplies; he strongly disapproved of Mr. Balfour's ambiguity and evasion, and finally, in Oct., 1903, resigned his office because of the prime minister's failure to make "a definite statement of adherence to the principle of free trade as the ordinary basis of our fiscal and commercial system, and an equally definite repudiation of the principle of protection in the interest of our national industries."

DE WITT, CALVIN. An American military surgeon, died at Fort Yellowstone, Wyoming, on September 3, 1908. He was born at Harrisburg, Pa., on May 26, 1840, and graduated at Princeton in 1860. He was studying medicine at the beginning of the Civil War but gave up his studies

to enter the army, serving as captain of a Pennsylvania regiment until 1863, when he resigned. He then completed his medical preparation, served in the last days of the war as assistant surgeon of volunteers, and in 1867 obtained a like commission in the regular army, serving until he was retired in 1903 with the rank of brigadier-general. During the Spanish War he organized the United States General Hospital at Fortress Monroe.

DIAMONDS. The occurrence of diamonds in the southern part of Africa seems to be widespread. Not only have new alluvial deposits been found in the more remote regions, but the number of known volcanic pipes—the original home of the South African diamond—has been increased by some remarkable finds. The discovery of the Premier mine, near Pretoria, a few years ago, ranks as the most important of those under actual exploitation, though it was reported on good authority that a pipe found in 1908 at Bembesi, 38 miles northeast of Bulawayo, even exceeded the Premier in size. Little information was available regarding the richness of the mine. A second pipe in the same vicinity was said to have shown an average of 30 carats to 100 loads (a load is 16 cubic feet) from the surface material. At Somabula, 12 miles from Gwelo on the railroad from Bulawayo to Salisbury, alluvial deposits were under operation. Another discovery was reported from the vicinity of Lüderitz Bay, German South-West Africa, where the diamonds occur in quartzose detritus. Of interest in connection with the origin of the South African diamond was the occurrence described in the Roberts Victor mine at Boshof, Orange River Colony during the year. The diamond-bearing yellow ground of that mine often contains nodular masses consisting of garnet, green pyroxene and cyanide. In one of these masses a number of diamonds were found. The so-called eclogite found in the older mines of the region had the same composition, but the occurrence of diamonds in it was disputed. The masses appeared to be of concretionary character, formed probably by segregation in the volcanic magma, so that the presence of diamonds seemed to give strong support to the theory that the stones are original crystallizations in place and have not been introduced from some foreign source.

AMERICAN DIAMONDS. Additional details regarding the discovery of diamonds near Murfreesboro, Pike County, Arkansas, were made public. This is the first locality on the American continent where the diamond has been found in its original rock matrix, though isolated specimens occurring in loose surface materials had been reported from time to time from different places in the United States and Canada. According to an investigation by G. F. Kunz and H. S. Washington, the matrix of the Murfreesboro diamonds is a vitreous peridotite, forming a stock or volcanic neck which has broken through Carboniferous and Cretaceous quartzites and sandstones. The rock is of dark greenish color and composed of olivine, biotite, augite, perovskite, and magnetite, with a glass base. It resembles the kimberlite of South Africa, though unlike the latter it is not brecciated and contains no inclusions. Atmospheric weathering has decomposed the stock for some distance from the surface, producing green and yellow "grounds" which disintegrate rapidly on exposure. The outcrop of the neck forms a

rough ellipse, measuring 1,800 and 2,400 feet along the shorter and longer diameters, respectively, and occupies an area of about 40 acres. About 300 diamonds were found in the surface material, all within the limits of the igneous area. One specimen was taken from the green ground, at a depth of 15 feet, under conditions that left no doubt as to its having been actually in place. Regarding the size, color, and quality of the stones, an examination of 200 carats showed that they would compare favorably with most, if not all, the diamonds from the South African mines. The largest stone weighed 6.5 carats. A large proportion were white and for the most part grading high in color, brilliancy, and freedom from flaws. Tests were instituted to determine the average yield of the rock, which seemed to be the only uncertain element respecting its value.

THE CULLINAN DIAMOND, believed to be the largest ever found, weighing 3,024 carats in the rough, was successfully cut during 1908 by an Amsterdam firm. It yielded over 100 polished stones of which the largest, in the shape of a pendeloque or drop-brilliant, weighed 516½ carats, and the next in size, a square brilliant, weighed 309 3/16 carats. The size of these stones can be better appreciated when compared with the celebrated Kohinoor which has a weight of 106 carats. All the stones are without flaw and of the finest blue-white color. The two larger ones were cut with 74 and 66 facets respectively, while the usual number is 58 facets. The Cullinan diamond was found in the Premier mine in 1905 and was purchased by the Transvaal government for presentation to King Edward VII. See **CHEMISTRY, INDUSTRIAL**, section on *Artificial Gems*.

DIETETICS. See **FOOD AND NUTRITION**.

DINUZULU. See **NATAL**.

DISCIPLES OF CHRIST. The people known as "Disciples of Christ," or "Christians," sometimes denominated "Campbellites" after Alexander Campbell, of Bethany, W. Va., had their origin in Western Pennsylvania. Thomas Campbell issued his celebrated Declaration and Address in that year, and in 1811 the first church was organized. From 1827 may be dated the rise of this body as a distinct organization. In 1831 the movement of Barton W. Stone in Kentucky and that of Campbell were united, the purpose being the union of Christians on the foundations of the Original Apostolic Church, or the restoration of the ancient order of things as found in the New Testament. The growth of the denomination has been rapid. According to statistics for 1908, the number of churches was 11,654; ministers, 6,833; communicants, 1,330,980; Sunday Schools, 8,962, with 927,783 pupils; church property, \$30,000,000. With but two exceptions there are churches in every State in the Union, but their strength lies chiefly in the Middle West and South. There are many churches in Australia and other parts of Great Britain. The receipts for missions, 1908, are over one million of dollars, and for education and benevolence a half million more. Their Foreign Society has flourishing missions in China, India, Japan, Africa, Cuba, Scandinavia, Tibet, and the Philippines. Its income was \$274,324. The American Christian Missionary Society conducts domestic missions and received \$123,755, sustained 344 workers, and added to the churches 16,743. There is also a Christian Woman's

Board of Missions, which supports missions at home and abroad, and whose receipts were \$295,630. The Disciples rank third among the religious bodies in the number of Christian Endeavor Societies. They have many strong educational institutions, as Bethany College, W. Va.; Hiram, Ohio; Transylvania University, Lexington, Ky.; Drake University, Des Moines, Iowa; Eureka College, Eureka, Ill.; Butler University, Indianapolis, Ind.; Christian University, Canton, Mo., and many others. Their last National Convention was held in New Orleans. Their Centennial will be observed Oct., 1909, in Pittsburgh, where 50,000 delegates are expected.

DISEASES OF ANIMALS. See VETERINARY MEDICINE.

DISTRICT OF COLUMBIA. That portion of the Federal domain which is the seat of the government of the United States. It is coextensive with the City of Washington. It was organized on Mar. 30, 1791, when a concession of land amounting to 100 square miles was made to the United States by the States of Maryland and Virginia. It originally included two counties, Washington and Alexandria, but the latter was ceded to Virginia on July 9, 1846, and in 1874 the county government at Washington was abolished. The gross area is about 60 square miles. The population in 1905 was 302,833. A census was taken on April 8, 1908, which showed the total population of the District to be 339,403, including 97,483 colored.

FINANCES. The receipts from all sources of the District of Columbia, for the fiscal year ending June 30, 1908, were \$13,048,968, including a cash balance from the fiscal year 1907 of \$477,159. The expenditures for the same period were \$12,717,740, leaving a cash balance on July 1, 1908, of \$331,187. The chief sources of revenue were as follows: Taxes and other general revenues, \$5,494,447; trust and special fund collections, \$1,079,258; United States payments from appropriations, \$5,690,963.

EDUCATION. The main interest of the District of Columbia is public education, and it calls for the largest amounts in the estimates of appropriations. The recommended appropriations for the fiscal year 1909 were \$4,696,340, which is a considerable increase over the expenditures for 1908, and results from the statutory increase in the pay of teachers and others in the public schools, and from the sum required for additional buildings and grounds, for which purpose \$2,218,500 was asked. During 1908, special efforts were made by the Commissioners and Board of Education to improve the condition of the school buildings, especially with a view to better protection against fire and panic, and unsanitary conditions. During the fiscal year, nine school buildings were completed, and progress has been made upon three others authorized by Congress. The total enrollment of pupils in 1908 was 57,013, of whom 53,359 were in day schools and 3,654 in night schools. There were 1,691 teachers, of whom 1,596 were in day schools and 95 in night schools. The Commissioners of the District, in their annual report of 1908, asked for the sum of \$75,000 for the purchase of public playgrounds. The sites already purchased for this purpose have been most profitably used.

MUNICIPAL CONDITIONS AND PROGRESS. The formal opening of the new District Government Building was celebrated on July 4, 1908, in connection with the 131st anniversary of the Dec-

laration of Independence. Addresses were made by the Speaker of the House of Representatives, the Secretary of the Treasury, and representatives of the Washington Board of Trade, the Washington Chamber of Commerce, the President of the Board of Commissioners of the District of Columbia, and others.

The estimated value of building work during the year, not including buildings of the United States government, was \$8,711,557, which was a decrease over the value of building work during the preceding fiscal year of \$4,000,895. The number of dwelling houses constructed was 1,224, a decrease of 27 over the figures of 1907. 135 business buildings were erected, being a decrease of 42 over the previous year. On May 23, 1908, an act was passed authorizing certain extensions to be made in the street railway lines in order to reach the new Union Station. The bill authorized temporary tracks and required that permanent construction should be completed on or before May 1, 1909. The work of installing this construction progressed rapidly during the year. The appropriation of \$15,000 for the care and maintenance of Rock Creek Park, was spent in the general care and maintenance of roads, bridle paths, and open spaces. The Commissioners asked an appropriation of \$2,500 for the fiscal year 1909, which will provide for the care and maintenance of the park, and also for constructing an approach to the park in Biddle Parkway near Sixteenth Street along the valley of Piney Branch, for which ground was acquired during the year. Bills were pending in Congress at the end of the year for the purchase of additional land for a park. The plans for expansion and beautification of Washington included the projects of the improvement of Rock Creek Valley and the Anacosta Basin, and conversion of the property between Pennsylvania Avenue and the Mall into a park where the national government may erect the buildings which it will need in the future. The latter project is already begun, by the appropriation of \$2,500,000 by Congress at the last session for the acquisition of the square between Fourteenth and Fifteenth streets. The Commissioners approved the plan to have the United States purchase all the land between its present holdings around the Capitol and the Union Station so as to make a park between the two. The new buildings for offices of the Senate and House were brought to completion during the year.

HEALTH AND SANITATION. Special efforts were made during the year for the improvement of the health of the District of Columbia. The presence of leading health officers and sanitary experts at the International Tuberculosis Congress, held at Washington in October, brought gratifying commendation of the work already done by the health department. Congress has provided for the registration of tuberculosis cases in the District. The death rate during the year was 19.25, which was a trifle lower than the preceding year, 19.35. Deaths among white people showed a death rate of 15.55 and among the colored population, 28.22. Tuberculosis caused more deaths than any other one factor, and the colored race suffered most severely from the ravages of this disease. Typhoid fever continued to occur during the year, though the causes for its prevalence had not been accounted for by the most diligent search.

CHILD LABOR. An act was passed by Congress on May 28, 1908, regulating the employment of

child labor in the District. It provides that children of a certain prescribed age shall not be employed unless they have approved age and schooling certificates, and it provides also that no age and schooling certificates shall be approved unless satisfactory evidence is furnished by duly tested transcript of birth, or by certain other specific evidence, showing the place and date of birth. The law provides further that the certificates referred to shall show that the child has reached the normal development of a child of his age and is in sound health and physically able to perform the work which he intends to do. See CHILD LABOR.

NEEDS OF THE DISTRICT. The Commissioners in their annual report ask for appropriations for the following purposes: Public school buildings and grounds; high pressure fire protection service in the heart of the city; the improvement of Rock Creek Valley; the improvement of Anacostia River and Washington harbor front; additional suburban sewers, and completion of the Piney Branch Bridge. They also urged the passage of the civil service law, a law regulating assessment on life insurance, the repealing of the law authorizing the watering of the stock of the gas companies, the reduction in the price of gas; authority for branches of the public library under the Carnegie promise of branch buildings; further improvements in the charity system; regulation of all public corporations; the improvement of the liquor law; the teachers' annuity bill; and a bill to regulate loan agencies.

OFFICERS. The Commissioners of the District of Columbia in 1908 were: Henry B. MacFarland, President; Henry L. West, and J. J. Morrow.

DIVORCE. Probably the most important contribution to the discussion of the subject of divorce during 1908 was the publication by the Bureau of the Census of the Department of Commerce and Labor of a report on Marriage and Divorce for the twenty years 1887 to 1906 inclusive. This report was similar to one covering the preceding twenty years, 1867 to 1886, thus making available detailed statistics of divorces in the United States during forty years. The data were obtained by a large body of clerks from the permanent Census Bureau making direct examination of the records of local courts throughout the country. Only the briefest possible summary of results can here be given.

During the period under investigation, 1887 to 1906 inclusive, there were recorded 12,832,044 marriages. The annual number rose from 483,069 in 1887 to 853,290 in 1906. The increase however was not uniform, the numbers being very sensitive to industrial conditions. Thus there was only a slight increase over the preceding year in 1893 and an actual decrease in 1894 and in 1904. The increase was most marked in 1895, in the years 1900 to 1903 inclusive, and in 1906. This inquiry makes possible for the first time an approximately correct estimate of the marriage rate in the United States. On the basis of the total population this rate was 9.1 per 1,000 in 1890 and 9.3 per 1,000 in 1900. On the basis of the adult unmarried population (i.e. single, widowed and divorced, fifteen years of age or over) the rate was 31.6 per 1,000 in 1890 and 32.1 per 1,000 in 1900. This rate in 1900 by divisions of states was as follows: South Central, 43.6; South Atlantic, 35; North Central, 32.2; Western, 27.3; North Atlantic, 26. Of ten States showing rates above 40 per 1000 of adult marriageable population, all but Utah were southern.

The inquiry was, however, devoted mainly to the subject of divorce in the United States. The total number reported for the twenty years 1887-1906 was 945,625, as compared with 328,716 for the twenty years 1867-1886. By five-year periods the numbers reported were: 1867-71, 53,574; 1872-76, 68,547; 1877-81, 89,284; 1882-86, 117,311; 1887-91, 157,324; 1892-96, 194,939; 1897-1901, 260,720; 1902-6, 332,642. The percentage increases in divorces granted as compared with percentage increases in population were as follows by decades: 1870-1880, population 30 per cent., divorces, 79 per cent; 1880-1890, population 25 per cent, divorces 70 per cent; 1890-1900, population 21 per cent., divorces 66 per cent.; 1900-1906, population 10.5 per cent. (est.), divorces 29.3 per cent. The data indicated that not fewer than 1 in every 12 marriages ultimately terminated in divorce. The report states that divorce rates are higher in the United States than in any other country supplying statistics of them.

The divorce rate by States shows wide variations. By divisions of States the rates per 100,000 married population were as follows in 1900: Western, 356; South Central, 279; North Central, 255; North Atlantic, 100; South Atlantic, 98. On this same basis the rates for States showing largest average numbers for the years 1898 to 1902 inclusive were as follows: Washington 513; Montana, 497; Colorado, 409; Arkansas, 399; Texas, 391; Oregon, 368; Wyoming, 361; Indiana, 355; Idaho, 347; Oklahoma, 346; Arizona, 344; Indian Territory, 326; and Nevada, 315. States reporting the fewest numbers per 100,000 married population during the same five years, 1898-1902 were as follows: Delaware, 43; New York, 60; New Jersey, 60; North Carolina, 75; Georgia, 78; and Pennsylvania, 94. These results are not in all cases truly representative, owing to the frequent migration of parties seeking divorce from the state in which the cause for divorce arose to some state where divorce is easier. Nevertheless such states as South Dakota, which have achieved some notoriety on account of these migratory divorces, do not show excessive numbers. Thus South Dakota reported only 270 on the above basis, a number exceeded by seventeen States, including Maine, New Hampshire, Rhode Island, Kansas, Missouri, Utah, and California, besides those already enumerated. Moreover most of the other North Central States reported almost as many. Among the causes of the variations among the States are given the composition of the population as regards race or nationality; the proportion of immigrants and the countries whence they came; religious belief, especially prevalence of Catholicism; variations in divorce laws and court procedure; and interstate migration.

Classified on the basis of libellant, the results showed that almost precisely two-thirds of the divorces were granted to the wife. This proportion remained very constant throughout the entire forty years 1867-1906. Non-support or neglect to provide was the ground for 34,664 divorces granted to wives during the twenty years 1887-1906, but of only 6 (all in Utah) granted to husbands. So also cruelty was the stated cause in five times as many divorces granted to wives as to husbands. The proportion granted to husband and to wife vary greatly among the States. The proportion granted to wife during the entire period by divisions was as follows: Western, 72.3 per cent; North

Central, 71.7; North Atlantic, 68.8; South Central, 56.2; and South Atlantic, 53.1. In four southern States, Virginia, North Carolina, Alabama, and Mississippi, more divorces were granted

to husband than to wife. The following table presents a classification of divorces both with regard to stated causes for divorce and to whom granted.

Cause	Divorces: 1887 to 1906.					
	Total		Granted to husband		Granted to wife	
	Number	Per cent. distribution	Number	Per cent. distribution	Number	Per cent. distribution
All causes	945,625	100.0	316,149	100.0	629,476	100.0
Adultery	153,759	16.3	90,800	28.7	62,869	10.0
Cruelty	206,225	21.8	33,178	10.5	173,047	27.5
Desertion	367,502	38.9	156,283	49.4	211,219	33.6
Drunkenness	36,516	3.9	8,436	1.1	33,080	5.3
Neglect to provide	34,670	3.7	6	(1)	34,664	5.5
Combinations of preceding causes,	88,849	9.4	14,330	4.5	74,519	11.8
All other causes	58,104	6.1	18,026	5.7	40,078	6.4

¹ Less than one tenth of 1 per cent.

Special effort was directed toward ascertaining the extent to which drunkenness was a direct or an indirect cause of divorce. As the table indicates it was the sole ground in 3.9 per cent. of all cases. It was combined with other causes in 1.9 per cent. of all cases, thus making it an immediately assigned cause in 5.7 per cent. of all cases. Careful searching of the records of individual cases showed that in at least 130,287 or 13.8 per cent of all divorces, intemperance was an indirect or contributory cause. It resulted that intemperance was a cause, direct or indirect, in 6.1 per cent of the divorces granted to the husbands and in 26.3 per cent, of those granted to wives. In those cases where intemperance was only an indirect cause, cruelty was most frequently the direct cause. It was a contributory cause also in many divorces granted to husbands on the ground of adultery and to wives on the ground of neglect to provide.

The average duration of marriages terminated by divorce during the twenty years, 1887-1906 was 9.9 years. Nevertheless, 28.3 per cent. of the marriages lasted less than five years, and 59.7 per cent. of them lasted less than ten years.

In most cases separation precedes divorce. An effort was made to ascertain the time elapsing between marriage and separation. This was learned in the case of 770,929 couples, or four-fifths of the total number. The results showed that fully 12.7 per cent. of divorced couples separated in the same calendar year in which married, and 14.2 per cent. in the following year, while 57.8 per cent. separated within five years. However, 3.1 per cent. separated only after twenty-five or more years of married life. Almost four-fifths (78.5 per cent.) of all divorces were granted within five years after separation of the married couple.

The existence of children constitutes one of the most important features of divorces cases. During the twenty years covered by this report, 39.8 per cent. of the cases reported children, 40.2 per cent. reported no children, and 19.9 per cent. made no report as to children. In the opinion of the Census Bureau, the failure to report as to children was equivalent in most cases to reporting no children. Among divorces granted to husbands, 26 per cent. reported chil-

dren, while among those granted to wives, 46.8 per cent so reported. Or classified with respect to children, the results show that in 77.9 per cent. of cases reporting children the divorce was granted to the wife, and only 22.1 per cent. to the husband.

A noteworthy piece of divorce legislation was the referendum vote in South Dakota, on a new statute. The new law provides that applicants who were married elsewhere, unless cause arose in South Dakota, must be *bona fide* residents of the State for at least one year, before they can institute proceedings. Parties married in the State and continuing to reside therein and parties for whom cause arose during residence in the State may bring suit at any time. All cases, except those relating to alimony and interlocutory decrees must be heard at regular terms of courts. This law aims to make divorce more difficult, and is thus in line with the general tendency of legislation in the United States. While divorce continued to be a topic of discussion throughout the year, little that was new was developed. Various viewpoints were represented by speakers at the annual meeting of the American Sociological Society in Baltimore, in December.

DIX, MORGAN. An American Protestant Episcopal clergyman, rector of Trinity Church, New York, died on Apr. 29, 1908. He was born in New York City, on Nov. 1, 1827, a son of Gen. John A. Dix. After graduating at Columbia College, in 1848, he entered the General Theological Seminary, where he graduated in 1852, was ordained deacon, and was raised to the priesthood in the following year. He was assistant minister at St. Mark's Church, Philadelphia, in 1852, and, returning to New York in 1854, joined the clerical staff of Trinity Church. He became assistant rector in 1860, and in 1862, was made rector, a post which he held for 54 years. He was president of the House of Deputies of the General Triennial Convention of the Episcopal church from 1888 until 1903. He received the degree of S.T.D. from Columbia in 1862, of D.C.L. from the University of the South in 1885, and of D.D. from Princeton in 1896 and from Oxford in 1900. He published several books on religious and devotional sub-

jects, including *The Bishop Paddock Lectures for 1892*, *The Bishop Paddock Lectures for 1901*, and a *History of the Parish of Trinity Church* (4 vols., 1908).

DOCKS. During the year 1908 the most important dock construction, as usual, was to be found in Europe, where the considerable rise and fall of tide and the more permanent construction of commercial facilities at harbors make such work more conspicuous and important than in the United States. Mention should be made, however, of the approaching completion of the Chelsea piers on the North River, New York, designed to accommodate the largest transatlantic liners and to provide adequate facilities for their cargoes and passengers. These piers have been constructed partly by excavating and dredging the slips into the land so as not to encroach beyond the pier line of the North River. Having obtained powers from Parliament to begin the construction of the new docks for the largest vessels entering the Port of Liverpool, the Mersey Docks and Harbor Board gave orders for the commencement of new works which were estimated to cost about \$15,000,000. The works in progress included a half-tide dock with a river lock 870 feet in length, which is 90 feet longer than either the *Mauretania* or *Lusitania*, and 130 feet in width, with adequate depth for the largest vessels. This half-tide dock will communicate with another dock connecting in turn with two new basins, and a new lock will be constructed to afford entrance to the Hornby and the old dock systems. At the port of Southampton progress was made on the construction of the new wet dock for the White Star Liners, which will have a water area of 16 acres, with a depth of from 35 to 40 feet. The new dock at Avonmouth, built by the Corporation of Bristol, was opened by King Edward in July at about the time of the 100th anniversary of the opening of the first dock at Bristol. This dock has an entrance lock 875 feet in length and 100 feet in width. In France the most important work was the construction of the Florida lock at the Port of Havre, which connects the Bassin de l'Eure and the Bassin Bellot with the outer harbor. This lock is about 854½ feet in length between the gates and is 98½ feet in width. Important progress was also announced on the large Alexandra Dock, at Bombay, India, which has been in construction since 1904. This dock will afford accommodation for vessels 1,000 feet in length, 100 feet beam, and a draught of 36 feet, and will cost, when completed, about \$73,000,000, or somewhat more than half of the total scheme of improvement for the port. There was to be a dry-dock for vessels of the same size and extensive warehouses and other improvements, the construction of which was involving important engineering work. During the year, the breakwater protecting the marine docks was completed.

DRY-DOCK. A large dry-dock was announced to be built at Antwerp, which will be 754 ft. long, 88½ ft. wide at entrance, and 32¾ ft. deep. It was expected that it will take three years to complete the structure.

DODGE, FRANCIS SAFFORD. An American soldier, distinguished as an Indian fighter, died on Feb. 10, 1908. He was born on Sept. 11, 1842, in Danvers, Mass., was educated in the public schools there, and at the Henneker (N. H.) Academy, and in 1861 enlisted as a private in the Twenty-third Massachusetts Infantry. He be-

came corporal in that regiment in 1863, first lieutenant in the Second United States Cavalry (colored) in 1863, captain in that regiment in 1865, and was honorably mustered out of the service in 1866. He reentered the service as a first lieutenant in the Ninth Cavalry (colored) in 1866, and became a captain in 1867. He entered the paymaster's department, with the rank of major in 1880, and was thereafter advanced to the rank of lieutenant-colonel (1901), colonel and assistant paymaster-general, and in 1904 paymaster-general, with the rank of brigadier-general, which post he held until he was retired, in 1906. Under command of Captain Dodge, in January, 1870, four troops of the Ninth Cavalry destroyed a large Indian Camp in the Guadalupe Mountains; but the exploit which made him famous occurred in Western Colorado, where, in September, 1879, at the head of troop D., of the Ninth Cavalry, he voluntarily made a forced march of more than 100 miles, to the relief of Major Thomas T. Thornburg, whose small force was surrounded by Indians near Mill Creek, and threatened with annihilation. Captain Dodge's troop fought their way through the Indians, joined Major Thornburg's men in their rifle pits, and held the Indians at bay until reinforcements arrived. During this uprising 11 citizens, 2 officers (including Major Thornburg) and 12 soldiers were killed, and 41 persons were wounded. For this feat, one of the most brilliant in Indian warfare, Captain Dodge was awarded the Congressional Medal of Honor, and was brevetted major (1890).

DOMINICA. A British island of the West Indies, forming a presidency of the Leeward Islands (q. v.). Area, 291 miles; population (1906), 31,943. Roseau, the capital, has about 6,000 inhabitants. The principal products are cacao, limes, coffee, fruit, and some sugar. In 1907-8 the imports and exports amounted to £128,650 and £124,294 respectively. The revenue in 1907-8 was £39,865; the expenditure, £31,486; and the public debt, £51,015. The administrator in 1908 was W. Douglas Young.

DOMINICAN REPUBLIC. See SANTO DOMINGO.

DRACHMANN, HILGER HENRIK HERHOLDT. A Danish poet and novelist, died on Jan. 14, 1908. He was born at Copenhagen, on Oct. 9, 1846, the son of a physician, whose family was of German descent; was educated in the University of Copenhagen, then studied painting in the Academy of Fine Arts there, and from 1866 to 1870 specialized in marine painting under Sørensen. About 1870 some of his verses attracted the attention of George Brandes, and from that time Drachmann devoted himself to literature. During this period he published such volumes as *Poems* (1872); *Muffled Melodies* (1875); *Young Blood* (1876); *Songs of the Sea* (1877), and *Over the Frontier There* (1877). In these earlier years of his career he wrote also several very graphic stories of sea life, such as *The Honor of a Sailor* (1878), *Paul and Virginia of a Northern Clime* (1879, trans. 1895); and *Lars Kruse* (1879). From about 1885 to 1892, Drachmann was the leader of the literary faction which upheld national patriotic conservatism, and opposed the individualistic and radical school of Brandes and his followers. Under these influences, Drachmann wrote religious and national poems, and between 1890 and 1900 he produced, in both prose and poetry,

much in passionate praise of liberty, and in denunciation of the bondage of the commonplace. Of the long list of his published works, the following are fairly representative: *East of the Sun and West of the Moon* (1880); *Strandby Folk* (1883); *Once Upon a Time* (1885); *Gurre* (1899); *Hallfred Vandradeskjald* (1900); and *The Green Hope* (1901). Though he interpolated romantic verse in his novels, Drachmann was essentially a realist. He published in 1899 an autobiographical novel, *Den hellige Ild*, which contains many fantastic and lyric improvisations. His translation (or paraphrase) of Byron's *Don Juan* is a creditable effort.

DRAINAGE. The year 1908 witnessed an unprecedented agitation for the better utilization of the natural resources of the United States. One of the greatest of these resources unused was the vast area of swamp and overflowed land. April 30, 1908, the Secretary of Agriculture made a report to the Senate as to the location and area of these swamp lands susceptible of being drained for agriculture, the effect of drainage of such lands, the area of land which has been drained under the laws of the different States, and the benefits which have resulted therefrom. Most of the data given below are taken from that report. The area of swamp and overflowed lands in the United States was estimated as about 79,000,000 acres. With reference to their productive value as affected by their natural wet condition, they may be classified as follows:

(1) Lands which are permanently wet and are never fit for cultivation, even during the most favorable years, nor afford profitable grazing for live stock. (2) Lands which afford pasture for live stock, though the forage they produce may be of indifferent quality. (3) Lands which in their natural condition are subject to periodical overflow by streams, but which at other times produce valuable crops. (4) Lands which during seasons of light or medium rainfall will yield profitable crops, but which are wholly unproductive during the seasons characterized by a greater than the normal rainfall.

The reclamation of swamp lands consists of three distinct operations:

(1) The construction of ditches or improvement of such drainage channels as will be required by a large number of landowners in common, which may appropriately be called public drains. They are made through the cooperation of owners under the provisions of State drainage laws. (2) Detailed drainage performed by landowners upon plantation or farm. (3) The subjugation of wild vegetation, the removal of stumps and other foreign material, and the preparation of the soil for cultivation.

The total increase in land values in the United States from drainage work was estimated to be \$1,593,633,155, and the value of the annual increased production, \$273,079,295. It was estimated that the following areas (acres) in the States named had been drained under the provisions of the State drainage laws:

Illinois, 3,496,000; Indiana, 3,358,000; Ohio, 3,400,000; Michigan, 1,600,000; Minnesota, 1,500,000; Iowa, 915,000; California, 700,000; Missouri, 350,000; Wisconsin, 200,000; Nebraska, 100,000; North Dakota, 150,000; Louisiana, 120,000; making a total of 15,889,000 acres. The United States Office of Experimental Stations, through its division of Drainage Investiga-

tions, continued to make surveys and plans for the drainage of large tracts in many States and to aid individuals and communities in planning and carrying out drainage projects. The amount of unreclaimed swamp and overflowed land in the United States, by classes, is as follows: Permanent swamp, 52,665,020 acres; wet grazing land, 6,826,019 acres; periodically overflowed, 14,747,805; periodically swampy, 4,766,179; total, 79,005,023 acres.

DRAMA. Comedy, largely of English origin, continued during 1908 to hold the largest place in the attention of the American play-going public. The only strikingly meritorious work of this class—Mr. Percy Mackaye's *Mater*—was virtually ignored. Several dramas of contemporary American life, such as *Paid in Full*, *The Wolf*, and *The Easiest Way*, all three by Eugene Walter, proved to be highly promising. Mr. Charles R. Kennedy's *Servant in the House* and *The Winterfeast* were also notable productions. Upon the whole, the year, while more interesting in its theatrical doings than its predecessor, offered but little of commanding importance. While in the record of 1907 the most notable plays offered were of foreign origin—Ibsen's *Peer Gynt*, the last production by Richard Mansfield, MM. Gavault and Charnay's *My Wife*, Bernstein's *The Thief*, and W. J. Locke's *The Morals of Marcus*, the plays of 1908 by American authors have been many. Mr. Percy Mackaye, who in 1907 produced *Sapho* and *Phaon*, an ambitious play in verse that was wrecked by incompetent interpretation, brought forward *Mater*, a comedy in which wit and good writing were sufficiently conspicuous to atone for much affectation. The part of "Mater," a woman of many foibles but keen good sense who lays bare the stupidities of those around her and yet retains everyone's regard, was capably drawn. *Mater*, however, was above the heads of the theatre-going public and failed to hold the stage.

The Servant in the House, by Charles Rann Kennedy, in which the author undertakes to tear the mask from clerical hypocrisy, proved to be a remarkable play, teaching the lesson of charity in an impressive fashion, and with enough humor and dramatic movement to make it of absorbing interest. The public, at first inclined to ignore it as too serious for consideration, became interested and made it one of the successes of the year among thinking people. Another play by Mr. Kennedy, a tragedy in verse, entitled *The Winterfeast*, a tale of early Iceland, resembling somewhat Ibsen's *Vikings* in atmosphere and treatment, failed to find popular support notwithstanding literary merit and a capital interpretation. Edith Wynne Mathison in the chief part acted with fine art, but the play's intense gloom was a fatal bar to public acceptance. The time of action, 1020 A. D., and the Iceland setting gave opportunity for stage pictures that offered a background of poetic beauty for this notable tragedy of love, revenge, and superstition that had something of the spirit and the power of a Greek drama.

The mention of Greek drama recalls the ambitious but futile attempt of Mrs. Patrick Campbell to revive interest in Sophocles' *Electra*. The version used by the English actress was a translation by Arthur Symonds of the adaptation by Hugo von Hofmannsthal which has had some success in Germany. The story used was that of Sophocles, but the essence of many

other Greek playwrights, especially Euripides, is found in the play. This *Electra* was a Nemesis, devoid of womanly weakness. Mrs. Campbell failed to sound the deep tragic note that would alone make such a play vitally impressive, and had evidently undertaken a task beyond her power. Her ambition was a praiseworthy one and the production was elaborate, Mrs. Beerbohm Tree coming especially from England to impersonate Clytemnestra. Still another Greek play of the year well done by the students of the American Academy of Dramatic Arts, was the *Chephoroi* of Æschylus (*The Libation Pourers*), of which the one performance given was an interesting experiment.

Mr. E. H. Sothern, who, now that Mansfield is no more, probably ranks as the foremost American comedian in ambition and achievement, brought forward a version of *Don Quixote* by Paul Kester that might have earned a warm welcome had its wealth of incident not been swamped by too many long speeches. In the attempts to get all the good things of Cervantes' romance into the play it suffered from inordinate length, and notwithstanding Mr. Sothern's efforts, dragged beyond public endurance. Another play of dignified purpose in which Mr. Sothern figured was Mr. Laurence Irving's dramatization of Dostoyevski's *Crime and Punishment*, which was produced under the title *The Fool Hath Said: There Is No God*. The pictures of Russian life were interesting, but the character of Rodion is too persistently the reflection of a morbid obsession to win sympathy. In quite another field Mr. Sothern won popular favor that may have atoned in part for the ill-success of the plays just mentioned. As "Dundreary," in a revival of the famous old farce, *Our American Cousin*, in which his father, E. A. Sothern, made fame and fortune half a century ago, he gave a delightful portrayal of the impossible fop that so amused a past generation of playgoers. His impersonation was criticized as lacking the subtler touches which made the elder Sothern's "Dundreary" inimitable; but its excellence as a whole was freely conceded.

Irene Wycherly, an English play, by Anthony P. Wharton, afforded Miss Viola Allen an opportunity to portray a woman, who, after extraordinary self-restraint under brutal treatment, makes her revolt dramatic and effective. It is a strong and, at times, unpleasant play, marred by certain unnecessary crudities of expression that went far toward robbing it of popular favor. The question as to how much a wife should endure at the hands of a vicious husband is treated with power and no little originality. Its incidental resemblance in theme to Hervieu's *Dédale* does not affect this latter quality.

Three plays by Eugene Walter brought a new writer into public notice. The first—*The Wolf*—is a melodrama of the Canadian Hudson Bay country life, in which a rascally American engineer comes to grief at the hands of a virtuous and muscular habitant who loves the girl upon whom the villain has designs. The vital scene of the drama, its *raison d'être*, is a desperate fight to the death and all over the stage between the two men. Having, as he supposes, killed his opponent by foul attack, the villain gets the worst of it when the "dead" man comes sufficiently to life to turn the tables. Aside from a rather clever picture of backwoods life

in upper Canada, the play has little in it beyond this fight which made its popular success. The same idea—a death struggle between the virtuous half-breed and a rascally opponent, is used in *Pierre of the Plains*, produced this season by Mr. Edgar Selwyn. The second of Mr. Walter's plays, and the most important, *Paid in Full*, sketches the downward career of a man—a weak and leaky moral vessel at best—who, beginning with stealing from his employer in order to feed a woman's vanity, grows from bad to worse. As a sociological study, the play is insignificant, but the dialogue is direct, the action of interest and some capital acting was done in the chief parts by Tully Marshall, Frank Sheridan, Ben Johnson, and Miss Lillian Albertson, a new actress of promise. Mr. Walter's third success, *The Easiest Way*, first seen in Washington, sketches in a vivid fashion the temptations under which a woman of good instincts may come to grief. It is a picture of modern conditions, in certain phases of society, drawn with skill and power. Miss Frances Starr played the chief part admirably.

Salvation Nell, a play dealing with slum life in New York, by Edward Sheldon, attracted popular attention, thanks to the acting of Mrs. Fiske in the part of a woman who, through the regenerating power of religious influence as exerted by the Salvation Army, arises from the gutter to help the poor wretches around her to decency, among them her repentant lover. Leopards are made to change their spots in too rapid and radical a manner for critical observers. The portrayal of life among outcasts of a great city, its brutalities and indecencies, is made with an accuracy and wealth of unpleasant detail that serves no obvious purpose. Mrs. Fiske, and Mr. Horace Blinn as the depraved scoundrel whose heart is changed when rum and disease have laid him low, both did excellent work. The acting alone made *Salvation Nell* endurable. Another play in which an outcast of the Bill Sykes type is reformed in miraculous and incredible fashion was *The Regeneration*, by Owen Kildare and Walter Hackett, in which that erratic but interesting actor, Arnold Daly, strove in vain to win public favor. A thief, drunkard, and bully supposed to be New York's Bowery at its worst, meets an angelic settlement worker, and in less than no time she has him on his knees reciting the Lord's Prayer. He has his ups and downs, but the end is never lost sight of. Figs are made to grow on thistles, and the crop is a fine one. Love, of course, works the miracle, love on both sides and equally preposterous.

Samson, an adaptation of a drama by Henri Bernstein, was brought forward by Mr. William Gillette, who struggled hard in a part for which he is temperamentally unfitted. A dock laborer of uncommon mental vigor makes a large fortune in stocks and marries a beauty who proves to be of very ordinary clay. Naturally the husband has a hard time of it. The man who tries to steal his wife away can be ruined by certain stock manipulations, and although these involved also the downfall of the ex-laborer, he does not hesitate, but, Samson-like, pulls down the financial temple he has spent his life building up. The chief rôle was beyond Mr. Gillette's power.

Successful plays of American life given during the year included *The Man from Home*, which, although laid in England, has as its protagonist a breezy Indianian, who twists the British lion's



MRS. PATRICK CAMPBELL



OTIS SKINNER
in "The Honor of the Family"



WILLIAM H. CRANE
in "Father and the Boys"



MRS. MINNIE MADDEN FISKE
as "Salvation Nell"

tail until it roars for mercy. Virtuous American homespun against the titled blackguard is the well-worn theme worked out by the authors, Messrs. Booth Tarkington and H. L. Wilson, with the aid of capital acting by Mr. William Hodge in the leading rôle. Also *The Battle*, by Cleveland Moffett, in which some bubbles of the socialist creed are pricked. In it Mr. Wilton Lackaye gives life to the figure of a millionaire who shows that when men become capitalists they cease to be socialists. A curious incident in the story of the stage year was the presentation of several versions of *The Devil*, a much over-rated comedy by the Hungarian playwright, Ferenc Molnar, whose *Devil* is a cynical gentleman devoted to the making of more or less amusing comments upon the frivolous proceedings of some very commonplace puppets. The notoriety of the play in this country was due more to clever advertising than to literary or dramatic merit. Some clever acting was done in it by George Arliss, but neither in the English versions nor in a German production employing Eugene Burg, was it anything but trivial. Of far more significance was an adaptation by C. F. Nirdlinger, of Echegaray's *El Gran Galeoto*, produced under the title of *The World and His Wife*, in which Mr. William Faversham did the best work of his career, and despite hurtful mannerisms, made a deep impression. The play is a study of the evils of calumny, is admirable in dialogue and full of effective incident.

The most popular pieces in the domain of light comedy seen in 1908 were of English origin. Mr. Barrie's *What Every Woman Knows* deserves first place. As a young Scotchwoman, who makes the world around her brighter and better, helping her lover to make a success, but leaving the credit to others, Miss Maude Adams made much of a part in which humor and pathos are deftly mingled. Richard Bennett in the part of a blockhead who doesn't know that he owes his success to his devoted sweetheart, fully shared with Miss Adams the honors of a successful production. What every woman knows, according to Mr. Barrie, is that all men are children and must be humored accordingly. Upon this theme he constructs the comedy of the year. Miss Adams previously (January, 1908) did some nice work in *The Jesters*, an adaptation of *Les Bouffons*, a poetic romance of much merit by Miguel Zamacois, in which she played a Prince Charming part with delicacy. Both play and acting proved to be of rather too fine quality for public taste. Another original play, *The Mollusc*, by Hubert Henry Davies, which London heralded as a masterpiece, proved to be nothing of the kind, but a pleasant sketch of how a woman with good looks and brains may cajole the men around her into willing slaves. Its points were cleverly brought out by Miss Alexandra Carlisle, who showed in amusing fashion how laziness may be made to figure as a virtue.

Mr. John Drew's annual contribution to the gaiety of the country was made in a comedy by the prolific W. S. Maugham, the English playwright, whose *Jack Straw* gave the veteran actor a part of which he made the most. As an exiled nobleman disguised as a waiter, petted by upstarts and then reviled as an imposter, he played with his accustomed nonchalance. In *Lady Frederick*, another of Maugham's comedies—none of which appear to be deep, but all fairly sparkling—Miss Ethel Barrymore did the best work of her career. Her portrayal of an arti-

ficial, irresponsible, yet keen-witted woman of kindly impulses was an admirable one. Less artificial, and also amusing in detail, was an adaptation by Miss Gladys Unger of MM. De Flers and Caillavet's *L'Amour Veille*, played under the title of *Love Watches*, with Miss Billie Burke in the chief part, that of a vivacious young woman who believes that her husband has been unfaithful and resolves to pay him back in the same coin. Miss Burke, who plays with delicacy a difficult part, was ably helped by Mr. Ernest Lawford, the versatile English actor whose Hook in *Peter Pan* will be remembered as a capital performance. Also in the field of light comedy, but of less value than the plays just mentioned, was *The Chaperone*, by Marion Fairfax, with which Miss Maxine Elliott opened her new theatre in New York. It is supposed to be a comedy of American manners—often very bad manners—but offered entertainment of an innocuous sort. Earlier in the year Miss Elliott appeared in a play by Miss Rachel Crothers, called *Myself—Bettina*, a New England version of *Magda* that failed to interest the public. That ambitious and excellent actor Otis Skinner appeared in *The Honor of the Family*, an adaptation by Paul M. Potter of Émile Fabre's comedy founded upon Balzac's "Ménage de Garçon."

The new farces and very light comedies of the year were many and of the usual calibre—commonplace in idea and trivial from any point of view except that of the box office. Only three achieved sufficient popularity to need mention—George Ade's *Father and the Boys* (William H. Crane), *The Blue Mouse*, an adaptation by Clyde Fitch of a German original, and *Girls*, still another Fitch play, also from a German source.

Plays of slight importance that may be mentioned for purposes of record, were: *The Royal Mounted*, by William C. DeMille (Cyril Scott); *Agnes*, by Mrs. Sidney Drew (Miss Nance O'Neill); *Glorious Betsy*, by Rida J. Young (Mary Mannering); *The Offenders*, by Elmer B. Harris; and *Diana of Dobson's*, an English play by Miss Cicely Hamilton, in which Miss Carlotta Nillson appeared. Of rather more ambitious quality were *A Gentleman from Mississippi*, by Harrison Rhodes and Thomas A. Wise; *Mary Jane's Pa*, by Miss Edith Ellis; and *The Traveling Salesman*, by James B. Forbes.

No foreign stars of the first magnitude visited the United States during the year. Madame Komisarzhewsky, a Russian actress of some merit, appeared in several plays of Ibsen, in Gorky's *Children of the Sun*, Suderman's *Magda* and *Fires of St. John*. Her language, however, proved a bar to popularity. A company of actors from Dublin gave a number of Irish plays and sketches that appealed but slightly to our public. Finally a company of Sicilian players offered gruesome tragedies acted with crude power and unpleasant realism. London appears to have found much to admire in their work, but this country declined to become interested. A new German theatre was opened in New York, making two German houses with competent stock companies.

During the year the building of New York's New Theatre, designed to help dramatic art by the production of good plays whether financially profitable or not, went on apace, and dedication ceremonies were held in the half-completed structure. Winthrop Ames, of Boston, was made manager, and John Corbin, of New York, literary ad-

viser of the enterprise. Much criticism of the building was expressed on the ground that it is too large for anything but spectacular pieces, and, therefore, a failure for the purposes intended. Inasmuch as comedies and domestic dramas constitute nine-tenths of the American dramatists' output, the point seems to be well taken. The New Theatre was to be opened in the autumn of 1909.

London's new plays during 1908 included Mr. Shaw's *Getting Married: a Conversation*, brilliant in dialogue of the Shaw type, but devoid of anything like dramatic structure. Mr. Shaw predicted that the critics would be irritated and bored by his play; so far as London was concerned, they agreed with him. *Diana of Dobson's*, already mentioned, was a play in which Miss Cicely Hamilton shows how an impossible shop girl may enjoy life when a legacy comes her way. *Lady Epping's Law Suit*, by Davies, was too trivial to pass muster notwithstanding the excellent acting of Miss Mary Moore. Jerome K. Jerome's *Passing of the Third Floor Back*, based on one of this writer's short stories, tells in amusing fashion how a whole house full of reprobates are convicted of various sins and encouraged to reform. *Idols*, dramatized from W. J. Locke's novel, and *Mrs. Dot*, a society sketch by W. S. Maugham, were both well received, the latter having the advantage of Miss Marie Tempest in the chief part. While Alfred Sutro's *The Builder of Bridges* failed to equal his *Walls of Jericho*, London received it with favor, thanks largely to Miss Irene Van Brugh. *Marjorie Strobe*, by A. E. W. Mason, a story of Devonshire during the early part of the last century, made no impression. Mr. Forbes Robertson and Miss Gertrude Elliott produced a three-act comedy by Henry James, *The High Bid*, a graceful and well written little play devoid of stage vitality.

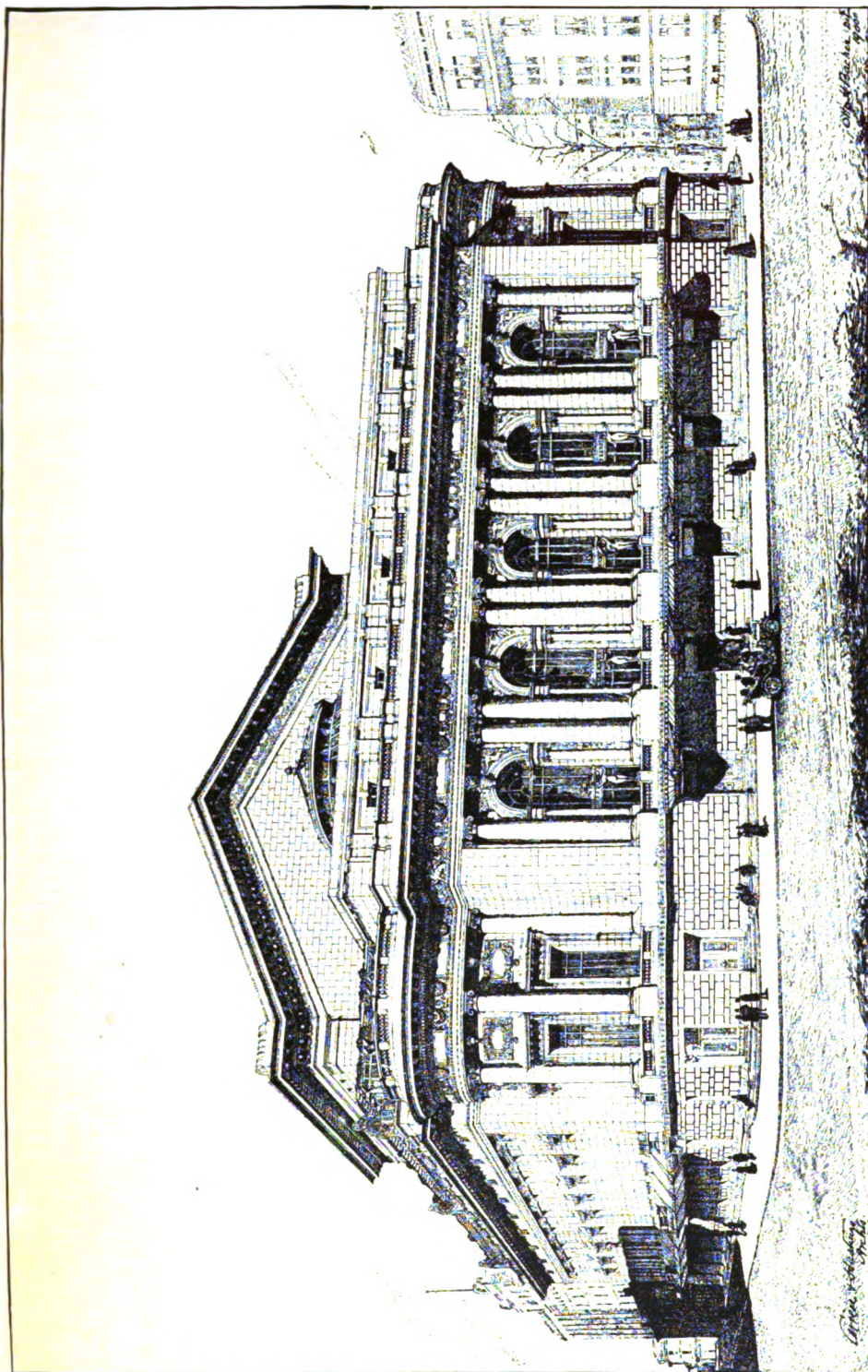
In France Mr. Alfred Capus broke away from the traditions of the French stage in making the chief figure of *Les Deux Hommes* a woman who is fascinatingly clever, but morally beyond reproach. In both Bourget's *L'Émigré* and Bernstein's *Israel* there is a boy who does not discover his real father until he has grown to manhood. In *Israel*, a conflict between Jew and Catholic is the theme. Mme. Réjane and De Max did exceptional work in it. Bourget's *Un Divorce* is a strong plea for the indissolubility of marriage, which was much applauded. *L'Autre*, by Paul Marguerite, supports the other and popular side of the question with literary and stage art. Among the plays of lighter calibre have been *Qui Perd Gagne*, by Pierre Veber, upon a novel by Capus, and a dramatization by Pierre Loti of his own *Ramuntcho*, that proved to be delightful. See FRENCH LITERATURE.

DREDGING. A Fruhling dredge for the improvement of the Fraser River, British Columbia, Canada, was purchased by that government at a cost of \$300,000. This type of dredges was of comparatively recent date, the system of excavating under water by this means having been invented by Otto Fruhling, of Braunschweig, Germany. In this method a large dipper dredge bucket, or a scraper of some sort, is fitted to the further end of the suction pipe so as to scrape up and collect the material to be dredged before it enters the suction pipe. The

results from this have been remarkable, giving the most powerful and economical dredging appliance known. The addition of the bucket head produces a greatly increased supply of sand and mud to the suction end of the pipe, and so completely prevents the admission of surplus water that pressure water connections had to be fitted to the inside of the bucket head, that enough water could be introduced to liquefy the material when too solid in character, so that it could be conveniently handled by the suction pump. Valves are therefore added to the bucket head, or scraper, to permit the inflow of water when so desired by the operator. In the interior of this scraper the dredged material is forced into a mixing chamber before it comes into range of the suction, where it is reduced to a uniform consistency by the pressure water or by the mere admission of outside water. From the mixing chamber, the material is drawn through the suction pump and discharged into the hopper. The material so discharged is a dense black or gray semi-fluid, somewhat like mortar in consistency, and in soft muddy and earthy material it is found possible to pump 90 per cent. of solid material as against 15 to 20 per cent. by the older forms of dredges. Where coarse sand is encountered, 50 to 70 per cent. of solid material is obtained, as against 10 to 15 per cent. by other dredging machines. The dredge is operated as follows: The head or scraper is dragged over the bottom at a speed of 4 or 5 knots, and thus made to scrape a strip 12 to 18 ft. wide, 12 to 18 in. deep. The material thus plowed up is forced into the bucket by the pressure of the scooping action, here kneaded, mixed, and liquefied, and finally sucked up by the pump.

Dredging operations in 1908 were in progress on the South West Pass of the Mississippi River, as was the case for three years previous, between the jetties. The U. S. dredge *Benyuard* was operating on the outer bar, and just above in the lower part of the shoal water above the jetty contraction. It was proposed to dredge a channel 35 ft. deep, 500 ft. wide at the bottom, and 22,400 ft. long, to connect the 35 ft. depth above with that between the jetties. Two 20-inch suction dredges with cutter heads and discharge pipes, 1,500 and 1,700 ft. long, were operating on the upper portion and have completed about 5,000 ft. of it. The United States dredge *Clatsop*, which was to be used upon the river improvement operations along the Columbia and Willamette Rivers near Portland, Oregon, started on its 17,000 mile trip around the Horn, which for a vessel of this class is a considerable undertaking. The dredge is 185 ft. long, and it is estimated at an average speed of 8 miles an hour it will take, making allowance for coaling, etc., nearly four months to complete the journey.

Hydraulic dredges were being used in the undertaking of reclaiming land for Lincoln Park, Chicago. It was proposed to fill in a large area of low-lying land north of the present park by this means, the material being taken from the bottom of Lake Michigan. The area to be filled extended for a distance of one mile along the shore front, and back from it for 1500 feet, requiring 4,000,000 cu. yds. for the filling. The dredges work partly in water which has a depth of 18 feet, and discharge on the land through pipes 30 inches in diameter. Heavy dredges known as stone



From the plans of Carrere and Hastings, Architects

THE NEW THEATRE
NEW YORK CITY

lifters were used on the St. Lawrence ship canal, two during 1908 being operated to remove boulders which are found to be too large for an ordinary dredge to handle. Each consisted of a wooden hulled boat, with a well in the middle, through which the large 60-ton capacity tongs are made to descend to the bottom. Here they engage the stones, which are raised on to the deck by a hoisting engine located aft.

For the harbor improvement of Liverpool the *Leviathan*, the new Mersey docks and Harbor Board dredge of 8,500 tons, the largest dredge in the world was constructed by Messrs. Gammell, Laird & Co., at Tranmere. This enormous suction dredge is capable of raising 10,000 tons of sand in 50 minutes.

DREYFUS, ALFRED. See FRANCE.

DROUGHT. See FORESTRY; TRANSMISSION OF POWER.

DRUG HABIT. See COCAINE; OPIUM.

DRURY-LOWE, SIR DRURY CURZON. A British soldier, died on April 6, 1908. He was born in Derbyshire on January 3, 1830, and after taking his degree at Corpus Christi College, Oxford, entered the army in 1874 as a cornet in the 17th Lancers. He served in the Crimea, in India at the time of the mutiny, and in the Zulu and Transvaal campaign in 1879-81. He commanded the cavalry division in the Egyptian campaign of 1882. He was inspector-general of cavalry at Aldershot from 1885 to 1891 and retired from active service with the rank of lieutenant-general.

DUDLEY, WILLIAM HUMBLE WARD, Second EARL OF, Governor-general of Australia. He was born on May 25, 1866, and was educated at Eton, after which he travelled around the world and in 1899-1900 served with the Imperial German Cavalry in South Africa. He was parliamentary secretary to the Board of Trade in 1895 and lord lieutenant of Ireland in 1902-06. He succeeded Lord Northcote as Governor-General of Australia (q. v.) in 1908, assuming office in September.

DUNKERS OR DUNKARDS. See BRETHREN, CHURCH OF THE.

DUTCH EAST INDIES. The area and population of the possessions of the Netherlands in the Malay Archipelago are as follows:

	Area sq. miles	Popula- tion, 1905
Java and Madura	50,775	30,098,008
Sumatra, West Coast	31,788	1,308,471
Sumatra, East Coast	35,480	568,417
Benkulen	15,556	413,301
Island of Tapanoei	16,251	204,269
Sumatra. Lampongs	11,338	156,518
Palembang	53,716	796,354
Atjeh (Achin)	20,549	582,175
Riau-Lingga Archipelago	16,378	112,216
Banca	4,473	115,189
Billiton	1,870	36,858
Borneo, West Coast	56,060	450,929
Borneo, South and East Districts	157,585	782,726
Island of Celebes	49,405	1,397,200
Celebes. Menado	22,176	436,406
Molucca Islands	44,038	407,419
Timor Archipelago	17,782	308,600
Bali and Lombok	4,063	523,535
New Guinea to 141° E. Long.	152,428	240,000
Total	748,340	38,938,000
Total, 1900 .....	.....	37,734,000

In 1900 there were 75,833 Europeans and Eurasians, mostly Dutch; 537,000 Chinese, 27,000 Arabs, and 17,000 other Orientals. In 1905 there were 80,873 Europeans. The principal cities, with their populations in 1905, are: In Java, Batavia, the capital, 183,551; Surabaya, 150,198; Surakarta, 100,667; in Sumatra, Palembang, 60,985; in Borneo, Banjarmasin, 16,708; in Celebes, Macassar, 26,145. There are public elementary and middle schools for Europeans, with about 20,000 pupils; government schools for natives, with 132,000 pupils; private schools for natives, with 95,000 pupils; and schools for foreign Orientals, with 12,000 pupils.

PRODUCTION, COMMERCE, ETC. The "culture system," introduced in 1832 and based on the compulsory labor of the natives in the cultivation of coffee, sugar, tea, indigo, tobacco, pepper, and other articles, is now confined to the cultivation of coffee. The "culture system" was never extended beyond Java and the neighboring island of Madura, the province of Sumatra, West Coast and the Residency of Menado, in Celebes. In the West Coast province the culture system was abolished March 1, 1908. (See SUMATRA.) In 1908 there were sold 18,220 bales of Borneo tobacco at Amsterdam at 31½ cents per one-half kilo, against 16,212 bales at an average of 40½ cents per half kilo in 1907. The exports of cotton in 1906 were 1,637,428 pounds of ginned cotton and 17,951,201 pounds of seed cotton. The production of coffee in Java and Sumatra in 1907 on Government account was 8,243,820 pounds, and on private account, 29,203,008 pounds. There are coal mines in Java (q. v.), Sumatra (q. v.), and Borneo. The tin mines of Banca are worked by the government; those of Billiton and Riau by private capital. Petroleum is obtained mainly in Sumatra, Java, and Borneo; the production in 1907 amounted to 1,178,797 metric tons. Sumatra also contains large deposits of tin and coal. There are saw mills, rice factories, arak distilleries, soap and ice factories, and printing offices. Dutch and foreign imports are treated alike. About three-fourths of the exports go to the Netherlands, with the exception of rice, of which a large amount is shipped to China. The total imports in 1906 amounted to 234,888,000 florins (1 florin=40.2 cents), and the total exports, 330,930,000 florins. Included in these totals were 11,061,000 florins' worth of imports and 16,250,000 of exports on government account. The principal exports in 1906 were: Sugar, 79,734,000 florins; tobacco, 57,599,000; copra, 18,012,000; coffee, 20,081,000; petroleum, 19,626,000; tin, 15,566,000; gutta-percha, 15,450,000; gum, 10,403,000; cinchona, 6,398,000; tea, 7,217,000; pepper, 8,564,000; rattan, 6,751,000; rice, 4,556,000; hides and skins, 4,158,000; nutmegs, 2,540,000. Direct shipments from the Dutch East Indies to the United States in 1907 amounted to \$17,638,431, mainly sugar. The length of railways in 1906 was 1,509 miles, of which 1,321 were in Java and 188 in Sumatra; of state telegraph lines, 8,640 miles. The merchant marine contained at the end of 1906, 2,494 vessels.

GOVERNMENT, ETC. The administration of the Dutch East Indies is in the hands of a Governor-General appointed by the Crown, assisted by a council of five members. The colony is divided into Residencies, of which

some are under the direct supervision of Dutch Residents, while others are under native rulers advised by Dutch officials. The Residents exercise almost absolute control through native officials. Java and Madura are directly administered by Residents, while the other islands, or "Outposts," are under Residents, Assistant-Residents, Governors, Controllers, etc. The general budget for 1908 estimated the revenue at 175,142,396 florins and the expenditure at 181,746,012. The army consisted in 1908 of 1,265 officers and 33,632 men, including 10,732 Europeans, besides an effective reserve of 5,331 (2,204 Europeans). The navy consisted in 1908 of 18 ships aggregating 28,243 tons, with crews numbering about 2,574. In 1908 the Governor-General was J. B. van Heutsz. A revolt broke out in the Island of Bali early in the year, but the Dutch troops sent to put it down captured the residence of the chiefs at Gelgal, inflicting a loss estimated at 100.

DUTCH GUIANA, OR SURINAM. A colony of the Netherlands on the northeast coast of South America. Area, about 49,845 square miles. Population (1906), 81,273, excluding some 12,000 Indians and Bush negroes. Paramaribo, the capital, had 34,870 inhabitants in 1906. In 1905 there were 56 elementary schools, with 7,489 pupils. The principal products in 1906 were: Sugar, 12,635,460 kilograms; rum, 784,217 litres; cacao, 1,480,568 kilograms; balata, 267 tons; gold, 1,178 kilograms. The estimate for the sugar output of 1908-9 was 12,000 tons. Other products are rice, maize, bananas, coffee, and molasses. In 1906 imports amounted to 6,273,000 florins (1 florin=40.2 cents), and exports, 4,749,000 florins. The revenue and expenditure for 1908 were estimated at 3,547,115 and 4,402,342 guilders, respectively, and the subvention from the mother country at 849,927 guilders. The Governor in 1908 was Dr. B. Fock.

DUTCH REFORMED CHURCH. See REFORMED CHURCH IN AMERICA.

DUTCH WEST INDIES. See CURACAO and DUTCH GUIANA.

DYAS, ADA. An Irish actress, long popular in London and on the American stage, died at Seaton, England, on March 12, 1908. She was the daughter of Edward Dyas (1815-77), and Ann Ada Dyas (1823-66), both well known to English theatre goers, and made her London debut in 1861 as Prince John of Lancaster in *Henry IV*. She created the part of Phoebe in Roberts's version of *Lady Audley's Secret*, and that of Clara in *Hunted Down*, which was first presented in London in 1866. Wilkie Collins selected her for the double rôle of Anne and Laura in *The Woman in White*, when that play was first presented (1870), and she also originated the part of Beatrice in Merivale's *A Son of the Soil*. Under the management of Augustin Daly, she made her first American appearance in 1872, at the Fifth Avenue Theatre, New York City, as Anne Sylvester in *Man and Wife*, and at Wallack's, in New York, she was very successful for three seasons (1874-76) in such rôles as Kate Hardcastle, Lady Teazle, Lady Gay Spanker, Lydia Languish, and especially in her interpretation of the impulsive and affectionate Claire Ffolliott in Boucicault's *The Shaughraun*. On the road in the United States she played Esther Eckles, in *Caste*. Subsequently at the Madison Square Theatre, in New

York City, she gave a very convincing impersonation of Mrs. Dick in *Young Mrs. Winthrop*, and thereafter she made an extended tour playing Mrs. Ralston in *Jim the Penman* and Mrs. Seabrooke in *Captain Swift*. Sir Henry Irving engaged her to play Goneril in his revival of *King Lear* at the London Lyceum in 1892.

DYER, LOUIS. An American classical scholar and lecturer, died in London, England, on July 20, 1908. He was born in Chicago, Ill., on September 30, 1851, studied in Switzerland and France, and graduated at Harvard in 1874, and in 1878, at Balliol College, Oxford, where he won the Taylorian scholarship. He was assistant professor of Greek at Harvard in 1881-87, and delivered the Lowell Institute lectures in 1889 on "The Gods in Greece," having meanwhile travelled in Greece, and in the Greek islands, with Malcolm Macmillan. In 1889 he became a lecturer on modern languages at Balliol, where his unusual ability was fully recognized, while his fine personal qualities won for him many warm friendships. He was acting professor of Greek at Cornell University in 1895-96, lectured before the Royal Institution in 1890, and in 1899-1900 delivered at American universities a series of lectures on the discoveries of Arthur Evans in Crete, which resulted in the material enlargement of the fund for further explorations in that field. He also served on the council of the Hellenic Society, and of the Egyptian Exploration Fund, for several years. His publications include, *The Greek Question and Answer* (1884); *Plato's Apology and Crito* (1886); *Studies of the Gods in Greece at Certain Sanctuaries Recently Excavated* (1891); *Schiller's der Neffe als Onkel* (1895); *Oxford as It Is* (1902); and *Machiavelli and the Modern State* (1904).

DYNAMO ELECTRIC MACHINERY. The development of this branch of electrical engineering during 1908 was confined almost entirely to alternating current apparatus. A new type of rotary converter for use in connection with storage battery installations, and a new type of single phase commutator motor for railway work, were put on the market. This new rotary converter was designed so as to give a variable direct current pressure at the commutator for a constant value of the alternating current pressure on the slip rings, which effect was obtained by alternating the distribution of flux over the pole area. The new type of single phase commutator motor, called by its promoters the series repulsion type, could be adjusted to eliminate entirely the sparking at the commutator throughout a considerable range of speed without the use of preventive leads in the commutator connections. The older compensated type of single phase commutator motor with preventive leads had, however, proved entirely satisfactory in service for the previous two years. For the construction of the iron cores of transformers a new steel alloy came into extensive use in 1908. This alloy was ordinary iron with about 3 per cent. of silicon added; the effect of the silicon was to reduce the hysteresis and eddy current losses in the core to about half the value for the best grade of steel previously used for this purpose, and also to prevent the aging of the iron due to exposure to high temperature. The permeability, however, is slightly lower than that of the older material for high flux densities, but

is considerably higher for low flux densities. The use of this steel for transformer construction has resulted in a considerable reduction in the weight and therefore the cost of a transformer of a given rating, even though the cost of the silicon steel is somewhat greater than that of the older material.

The advantages to be derived from the use of the steam turbine for driving a direct current generator were considered still questionable, although a number of these machines were in use. Considerable attention was paid during the year to the possible economy of using low pressure steam turbines in connection with large reciprocating engines for central station work. The combination is less efficient than the steam turbines alone, but there is undoubtedly a field for the low pressure steam turbine in large central stations already equipped with reciprocating engines.

DYSENTERY. See TROPICAL MEDICINE.

EARTHQUAKES. There was no abatement of seismic activity, at least in its destructive manifestations, during 1908. The record of the two preceding years, with the enormous losses inflicted by the San Francisco (1906), Valparaiso (1906), and Kingston (1907) earthquakes,—to mention only the more important ones,—was overshadowed by the disaster that befell Messina and Reggio on December 28, 1908. It is no exaggeration to say that this was the worst earthquake calamity ever visited upon a civilized country. In the extent and completeness of the devastation which it left in its wake, it surpassed any previous cataclysm on record, with the possible exception of one or two Asiatic earthquakes of which little has been made known to us. The Lisbon earthquake of 1755 killed 60,000 people, buried in the ruins of the city or drowned by the great sea waves that invaded the harbor. In 1783 Calabria was shaken by an earthquake, quite similar in some respects to the recent one, which left 30,000 dead and an equal number to perish by injury, famine, and disease. Were the loss of life in these disasters combined, it would scarcely equal, crediting the more conservative estimates, the number involved in the 1908 catastrophe.

The shock wrought its maximum effects within the narrow coastal strip bordering the Straits of Messina and the adjacent waters. The zone of devastation extended outward from this centre over an area of about 4,500 square miles, including the southern part of Calabria on the Italian mainland and the provinces of Messina and Catania, Sicily. The tremors were felt with decreasing violence as far north as Naples. The principal centres of population within the epicentral area were Messina on the northeast corner of Sicily and Reggio lying a little farther south and across the straits in Calabria. Smaller cities, villages, and hamlets existed all along the neighboring coasts, with many likewise in the interior. Messina, numbering 160,000 inhabitants, and Reggio, with about 60,000 (commune), were completely demolished, and it was believed that fully 100,000 people were overwhelmed in the ruins of the fallen buildings or perished in the fire and flood that ensued. Over 40 communities in Calabria and Sicily were desolated; among the number were Palmi, Bagnara, Monteleone, Pizzo, Seminara, San Procopio, Casano, Santa Eufemia, and Stefaniconi. The whole number

of dead can only be approximated, though the estimates by government officials placed it around 125,000. Other observers estimated it as high as 200,000. Confusion and panic reigned everywhere, and it was impossible to take count of the survivors whose only thought apparently concerned their individual safety. The populace, half-clad and mad with fear, streamed into the open country, leaving behind the imprisoned and injured, bent only on quitting the scene of disaster as rapidly as possible. The few that remained were afterward removed under government supervision in order better to provide for their support.

Immediately after the earthquake, fires broke out in many places, consuming the wreckage and many of the imprisoned, living and dead. At Messina the water and gas mains were disrupted, the latter giving rise to frequent explosions. The conflagration lasted there four days before it was got under control. The devastation left few vestiges of that once thriving city, next to Palermo, the largest and most important in Sicily. The houses were wrenched from their foundations, and all the large buildings, including the cathedral which had withstood the repeated shakings of past centuries, were laid to the ground. A single house was said to have been left in habitable condition. In Reggio the effects of the earthquake and fire were not less appalling; the loss of life there was reported to have been relatively greater even than at Messina. Following close upon the main shock all the low-lying section of the coast was invaded by immense waves that were set in motion by the sudden displacement of the sea bottom. The waters advanced in a massive wall 30 feet high and broke upon the land with tremendous force, submerging the harbor of Messina, where many survivors of the earthquake had taken refuge, and laying waste a large area. The quays were partially engulfed, and the whole sea front of Reggio was swept away. Ships at anchor in the harbor were severely shaken, but received little injury.

The financial loss involved in the disaster can hardly be estimated. Besides the public and private property destroyed, which was figured roundly at \$1,000,000,000 soon after the catastrophe, account must be taken of the indirect, though enormous, loss incurred by the extinction or derangement of local industries and the diversion of trade and commerce, which can only be repaired after many years; as well as of the thousands of injured and the still greater numbers of those who, deprived of their homes and means of support, must become a heavy burden upon the rest of the country. Messina was one of the most important commercial cities in the Mediterranean. It was the shipping centre for a large section of Sicily, besides serving as a main station on the trade route through the Suez Canal. The famous harbor, curved in the shape of a sickle, was strongly fortified. Reggio, lying on the principal railroad line traversing southern Italy, was the point of departure for boats to Messina and also carried on considerable commerce.

The main earthquake occurred at about 5.20 o'clock on Monday morning, December 28. It lasted only half a minute. According to witnesses it seemed in effect as if the ground sank under them and then rose again, after which there was a violent rocking motion. A heavy rumbling like thunder accompanied the shock

and torrents of rain fell in places. Smaller tremors were felt in the evening of the same day and for several days afterward, but the first did the damage. The shock may be considered the climax of a long period of disturbance, traceable by a series of smaller movements to the severe earthquakes of October, 1907, and September, 1905.

Notwithstanding the fearful havoc which it entailed, the shock does not appear to have been of excessive violence when compared with some of the earthquakes that have occurred elsewhere in recent years. In fact the records of foreign seismograph stations, at least those in this country, would indicate, if anything, that it was no more forceful than the San Francisco disturbance and perhaps less so than the Valparaiso shock. The unparalleled loss of life is to be ascribed rather to external conditions attending its occurrence. The main shock, as has been stated, came early in the morning when the inhabitants, being in their homes and asleep, were caught in the wreck of the falling timbers and masonry before they could escape to the streets. The buildings were mostly stone and stucco structures, few or none of which had been designed to withstand a heavy shaking, though the region has always been subject to frequent disturbance. In the San Francisco catastrophe, there was much less damage to the frame or steel structures, and the loss of life from that cause amounted to only a few hundreds. The same was true of the extraordinary Charleston earthquake. The floods and fires consummated the desolation at Messina, which was, however, chiefly the result of the first and principal convulsion.

Any full description and analysis of the physical features of the disturbance must await detailed official and scientific investigation, which will, no doubt, be undertaken in due time under government auspices. From early and available information there was reason to believe that the earthquake originated from a displacement of the strata very similar to the fault movement at San Francisco, except in this case the displacement occurred under the sea. The coastal region suffered most damage from the shock, while the waters were set in a violent commotion which could only arise from a sudden submarine dislocation, without much doubt along the depression occupied by the Straits of Messina. This depression—24 miles long and from 2 to 12 miles wide—has been generally considered to represent the result of faulting that took place principally in prehistoric, though geologically recent, times, before which Sicily was directly connected to the mainland. Thus, the latest disturbance may have been only a continuation or re-starting of a fault movement long since initiated. The reported modifications of the coast line and the changes in depth of the sea where tested by soundings tended to confirm this view. Any direct relation between the earthquake and volcanic activity in the vicinity was not apparent, though that possibility found some advocates. Both Etna and Stromboli seemed to have given little or no sympathetic response to the convulsion, notwithstanding both lie well within the region affected.

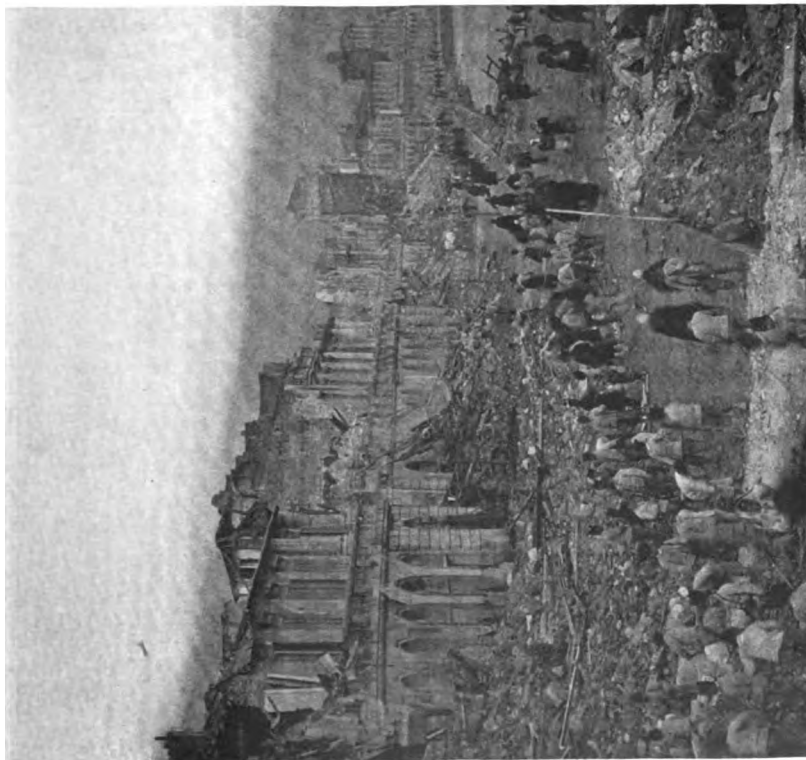
The scenes of horror and suffering incident to such a disaster were heightened in this instance by delay, unavoidable to a great extent,

in organizing the populace and bringing an effective service into existence. The inhabitants who escaped were too terrorized to give aid to the less fortunate; and as the railroads, bridges, and boat landings for miles around were deranged, many hours elapsed before the arrival of assistance promptly despatched by the government at Rome. First with the coming of troops and surgeons from the outlying cities began the search of the ruins for injured. Many hundreds were recovered in the first few days. Some were taken from the ruins alive a week or more after the earthquake. Temporary hospitals were installed at Rome, Naples, and other cities to receive the injured. Sailors from the British and Russian warships in the vicinity rendered splendid service in the rescue work. The King and Queen of Italy were foremost, among those who visited the region, in organizing and directing the forces. The government, by its energetic action in removing the populace from the cities with their piles of unburied dead, prevented the possibility of the outbreak of an epidemic, and, by the maintenance of martial law, held in check the criminal element that had begun a reign of violence and pillage. Other nations contributed generously toward the relief of the destitute survivors who were threatened with the additional horror of a famine. The United States Congress voted an appropriation of \$800,000, and a ship loaded with supplies was immediately despatched to Messina. A much larger sum was contributed from the United States through the American Red Cross Society.

Most of the thousands of dead found nameless graves. Among the Americans known to have been killed were Consul Arthur S. Cheney and wife at Messina, whose bodies were afterward recovered. Fortunately, there were not many tourists in the region at the time, the winter season of travel having hardly begun.

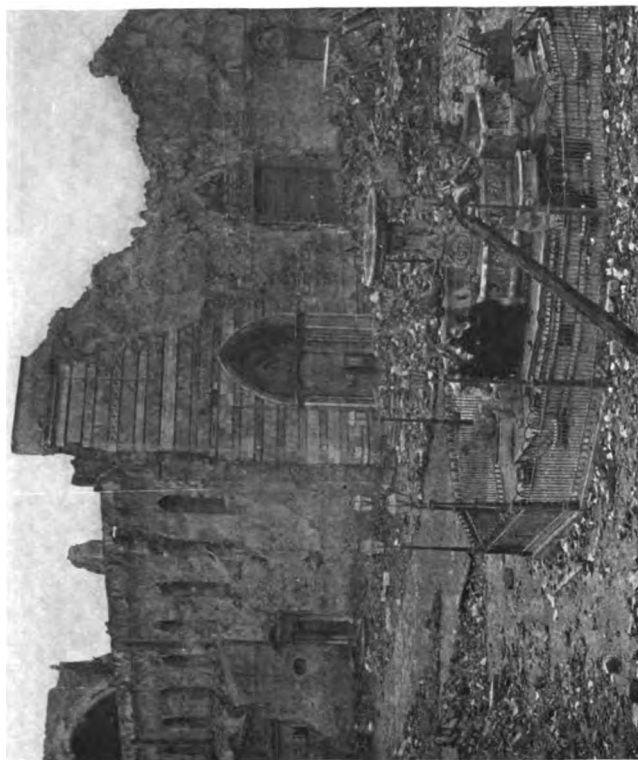
OTHER EARTHQUAKES. On March 26, 1908, a severe earthquake was felt in the State of Guerrero, Mexico. The greatest damage was inflicted at Chilapa, a city 115 miles south of the city of Mexico. The fatalities, if any, were not reported. Central Europe, as well as Italy, was shaken in November by a series of small disturbances, some of which seem to have been the precursors of the earthquake of December 28.

SEISMOLOGY. The first general meeting of the International Seismological Association, held at the Hague in September, 1907, was attended by representatives from nearly all countries where the scientific study of earthquakes is in progress. Among the principal subjects under discussion at the meeting were the establishment of additional observing stations at critical points, the improvement of recording instruments, and the encouragement of special investigations of seismic phenomena by financial grants from the association's funds. The Central Bureau of the association completed the task of collecting and publishing the record sheets for the Valparaiso earthquake of August 16, 1906. The volume, with its facsimile copies of the seismograms obtained at 78 different stations situated in nearly all parts of the world, should prove invaluable for the study of earth tremors and their propagation. An important paper on the theory of the origin of earthquakes was contributed by G. Agamennone of the Geodynamic Observatory, Rome, Italy.



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RUINS OF THE CITY ALONG THE CORSO VICTOR EMANUEL



**CATHEDRAL AT MESSINA AND THE FOUNTAIN OF THE
PIAZZA DEL DUOMO AFTER THE EARTHQUAKE**

THE GREAT EARTHQUAKE OF 1908 AT MESSINA

Two types of earthquakes are recognized, volcanic and tectonic. The former are connected with volcanic activity and may be traced to subterranean explosions during or preceding an eruption. They are rarely destructive and then only within a limited area. The tectonic earthquakes are caused by a slipping of a larger or smaller portion of the earth's crust along a fracture, usually extending downward in a nearly vertical direction. There are various explanations to account for such movements, but Agamennone would give prominence to the action of underground waters in undermining the surface rocks which then undergo displacement owing to the action of gravity. All rocks are attacked by the solvent power of such waters, and limestones to a marked degree, and in the course of time cavities might be formed, leaving the overlying rocks unsupported. With strata yielding suddenly to the strain, a subsidence of only a few inches would involve enough energy to give rise to earth tremors.

EAST AFRICA, BRITISH. See **BRITISH EAST AFRICA PROTECTORATE.**

EAST AFRICA, GERMAN. See **GERMAN EAST AFRICA.**

ECLIPSE, See **ASTRONOMY.**

ECONOMIC ASSOCIATION, AMERICAN
A learned society, organized in 1885 for the encouragement of economic studies and the publication of papers thereon. The 21st annual meeting of the Association was held at Atlantic City, December 28-31. Three smaller bodies, the American Sociological Society, the American Statistical Society, and the American Association for Labor Legislation convened at the same time and place. These associations devoted several joint sessions to subjects of common interest. The Economic Association and the Sociological Society discussed jointly the subject of Modern Industry and Family Life, while the Economic Association and the Association for Labor Legislation discussed together Employers' Liability, Industrial Insurance, and Public Boards of Arbitration. The annual address of the retiring president of the Economic Association, Professor Simon M. Patten of the University of Pennsylvania, was devoted to "The Making of Economic Literature." Perhaps the most important paper of pure economic value was that read by Professor J. B. Clark of Columbia on "Collective Bargaining." Professor G. E. Barnett of Johns Hopkins also contributed to the discussion of this subject. Among other important questions discussed in the general sessions were, tariff revision, the establishment in the United States of a Central Bank, and the public regulation of security issues by corporations. An important and interesting paper on the tariff was read by Professor H. C. Emery of Yale University. He maintained that historically the crusade against protection had been a failure so far as it had been founded on the consumers' interest. Free trade, he contended, had prevailed only when urged by the selfish interest of special groups of producers. The two leading papers on the establishment of a Central Bank were read by Paul M. Warburg of Kuhn, Loeb & Co. of New York City and by Horace White of New York City. In general, they both supported the project. In the concluding session an able paper was read by Professor C. J. Bullock of Harvard, who urged that legal restrictions imposed in

Massachusetts on the issue of securities by transportation companies had driven capital from the State and arrested the growth of needed railway facilities in New England generally. Milo R. Maltbie, of the Public Service Commission of New York of the First District, defended the public regulation of security issues by railway companies. The New Jersey law was outlined by Mr. Justice Swazey of the New York Supreme Court. In a joint session with the Sociological Society, the chief discussion related to the recent social census of Pittsburg. At the next annual meeting of the Association, to be held in New York City, the quarter centennial anniversary of its founding at Saratoga in 1885 will be celebrated. Professor Davis R. Dewey of the Massachusetts Institute of Technology was elected President and Professor T. M. Carver of Harvard University Secretary and Treasurer.

ECONOMIC ENTOMOLOGY. See **ENTOMOLOGY.**

ECUADOR. A republic of South America. Area (including the Galapagos Islands), 118,627 square miles; population, 1,272,000, mostly Indians, who are virtually slaves. The principal cities, with their populations, are: Quito, the capital, 50,841 (1906); Guayaquil, 51,000; Cuenca, 30,000; Riobama, 18,000; Ambato, 10,000; Ibarra, 10,000; Loja, 10,000; Puer-toviejo, 10,000.

EDUCATION. There are about 1,100 free elementary schools, normal, commercial, and technical schools. Since 1900 English has been taught in the normal schools by American teachers. The educational institutions of Quito in 1908 comprised the national university, 5 colleges (one military college), 2 normal institutes (one for girls), a medical school, 2 seminaries, a theological school, an institute of science, a school of arts and trades, 3 schools for young ladies, a conservatory of music, and 3 kindergartens.

PRODUCTION. Gold is mined at Zaruma, in the province of Oro, by an American company. Silver, platinum, copper, lead, iron, coal, and sulphur are also found. Salt production is a government monopoly. The leading agricultural product is cacao, of which Ecuador furnishes about one-fifth of the world's production; in 1906 the output was 57,770 Spanish quintals (of 101 pounds). The 1907 cacao crop was one of the shortest in recent years, while the 1908 crop is reported to be one of the best. The coffee crop of 1907 was one-half less than in 1906. There are some 5,000 cacao plantations, with 61,000,000 trees. The production of sugar in 1907 was 7,350 long tons; of rubber, in 1906, 620 tons, and in 1907, about one-eighth less. The annual yield of tobacco is between 3,000,000 and 4,000,000 pounds. The export of coffee from Guayaquil in 1906 was 5,770,000 pounds. The leading manufacturing industry is the making of Panama hats. At Quito there were in 1908 several establishments for the manufacture of cotton and woolen blankets, common carpets, hats, wagons and saddlery, brick and tiles, candles, cheese, chocolate, 7 flour mills, a foundry, an ice factory, 2 sugar refineries, etc. Religious paintings and statuary are largely exported. Guayaquil contains establishments for the making of cotton fabrics, mosaics, matches, soap, candles, ice, beer, biscuits, chocolate, and a well-equipped tannery.

FOREIGN COMMERCE. In 1907 the imports amounted to \$9,849,987, a gain of \$1,344,187 over 1906, and the exports, \$11,793,213, a gain of \$102,970. The principal imports in 1907 were: Textiles, other than silk, \$2,622,885; food products, \$1,535,907; iron and hardware, \$640,886; wines and liquors, \$444,063; coal, \$413,284; machinery, \$363,634; clothing, \$327,583; shoes and findings, \$1,666,387; drugs, \$292,147; gold and silver coin, \$1,084,444. The principal exports in 1907 were: Cacao (43,348.369 pounds), \$6,934,257; ivory nuts (47,131,627 pounds), \$1,358,056; hats, \$1,171,043; toquilla straw used in making Panama hats, \$90,523; rubber (1,031,510 pounds), \$777,544; hides, \$351,344; gold bullion, \$142,750; gold and silver precipitates, \$137,175. The trade with the principal countries of origin and destination in 1907 was as follows:

From and to	Imports	Exports
United States	\$2,349,182	\$3,347,185
France	598,300	4,046,380
Germany	1,800,390	1,483,607
Great Britain	3,540,996	1,165,000

COMMUNICATIONS. The port of Guayaquil was entered in 1907 by 210 vessels (1 American), of 422,344 tons. The Transandean Railway from Quito to Guayaquil, 286 miles long, was completed on June 19, 1908. Work on the Huigra-Cuenca railway, about 92 miles long, was begun in 1908. The total railway mileage in 1908 was 325 miles; of telegraph lines, 2,570.

FINANCE, ETC. The total revenues in 1907 amounted to 12,724,567 sucres (1 sucre=48.7 cents), and the total expenditure, 15,401,785 sucres. The deficit was due to railway construction, and was met by a loan of 2,892,811 sucres. The external debt stood in December, 1907, at 10,808,000 sucres; the internal debt, on December 31, 1906, at 7,784,311. On November 1, 1908, the President was authorized to negotiate a loan of 10,000,000 sucres for the payment of the internal debt, in order to release the federal revenues pledged to its payment. Military service is obligatory between the ages of eighteen and forty-five years, of which fourteen are spent in the regular army and thirteen in the national guard. The army in 1908 numbered 4,379 officers and men organized into 3 brigades of artillery, 9 battalions of infantry, and a regiment of cavalry. The national guard numbers about 90,000 men. The navy consists of 2 gunboats, of 1,782 tons. The President in 1908 was Gen. Eloy Alfaro, whose term is 1906-10.

HISTORY. Under the decree issued by President Alfaro in October, 1907, for a national exposition to be held at Quito, August 10, 1909, on the one hundredth anniversary of the struggle for independence in South America, arrangements were made for the participation of other nations. On April 12, 1908, the president read his message before Congress. It contained the usual review of conditions during the year, and congratulations on the relations with foreign powers. It was announced that a treaty settling the boundary dispute with Colombia (q. v.) would be submitted to Congress by the Minister of Foreign Relations. The public

school system was reported to have greatly improved, but additional facilities for technical education, including the establishment of scientific and industrial schools and an agricultural college, were recommended. Liberal immigration rules were also urged upon Congress in order to secure an adequate supply of labor and promote economic development. On August 29 a commercial and navigation treaty with Chile (q. v.) was signed, providing, among other things, that the same treatment shall be accorded to the vessels of one nation in the ports of the other as is given to each nation's own vessels, and that arrangements shall be made by both governments for subsidies of lines between the two countries. A sanitary convention was concluded with Panama September 26, 1908.

EDEBOHLS, GEORGE MICHAEL. An American physician, died on August 8, 1908. He was born in New York City on May 8, 1853, graduated at St. John's College, Fordham, A. B., 1871, and A. M. 1886 (LL. D., 1903), and in 1875 M. D. at the College of Physicians and Surgeons, Columbia University. He was house physician and surgeon of St. Francis Hospital, New York, in 1875-79; gynecologist at that institution in 1887-1903, and consulting surgeon there after 1903. After 1893 he was professor of the diseases of women at the New York Post Graduate Medical School and Hospital, and he was also consulting gynecologist at St. John's Hospital and at the Nyack Hospital. Dr. Edebohls made a specialty of abdominal surgery, and shortly before his death had performed the operation of decapsulation of the kidney for the relief of nephritis. He had published *The Surgical Treatment of Bright's Disease* (1904).

EDUCATIONAL ASSOCIATION, NATIONAL. See EDUCATION IN THE UNITED STATES.

EDUCATION IN THE UNITED STATES.

The report of the Commissioner of Education for 1907 indicates that in 1906-07 approximately 19,000,000 pupils were enrolled in educational institutions in the United States. For thirty years about 20 per cent. of the population has been so enrolled, but during that period the average school year has lengthened from 130 to 150 days and the average attendance of those enrolled has increased from 62 to 70 per cent. The attendance on higher institutions continued to increase until one person out of every ninety was enrolled in a high school and one of every three hundred in a college or similar institution. Of the 475,000 teachers in the public schools only 22 per cent. were men, their number having decreased for ten years. The salaries of teachers have risen during that time but not so rapidly as the expenditure for equipment. In 1906-07 salaries represented three-fifths of the \$330,000,000 expended for public schools, equipment one-fifth, other purposes one-fifth. The average teacher's salary was about \$57 a month for men and \$44 a month for women. The expenditure in that year for all forms of education was approximately \$442,000,000 and the investment equipment almost one billion dollars. New York City spent \$33,000,000 on its public schools, Chicago \$22,000,000 and Boston, \$10,000,000.

The Sixtieth Congress restricted the Bureau of Education to an appropriation of \$87,500, an increase of \$250 for books, and \$1000 to raise the salary of the Commissioner of Education to \$4,500. No appropriation was made for the investigation of agricultural and industrial education and similar topics, for which the National Education Association, the Commissioner of Education, and the Secretary of the Interior urged a grant of \$40,000. The State of New York, on the other hand, has approved plans for the erection of a \$3,000,000 State Education Building. In February the Commissioner of Education held in Washington a conference of the chief educational officers of the States and Territories.

The National Educational Association in its forty-sixth convention at Cleveland, Ohio, from June 29 to July 3, organized new departments of rural and agricultural education and of national organizations of women. Its annual declaration recommended: (1) the establishment of municipal trade, industrial and evening continuation schools for the preparation of advanced apprentices and journeymen; (2) the subordination of diversity in studies to thoroughness in essentials; (3) the careful consideration of the individuality of pupils; (4) the adaptation of public high schools to industrial as well as educational ends; (5) training in morals and in business and professional ethics; (6) the development of the Bureau of Education at Washington into an independent department of the government with resources for conducting and publishing investigations; (7) special preparation and higher salaries for teachers; (8) the revision of child-labor laws so as to favor education; (9) the use of school buildings for vacation and evening schools and for lecture courses for adults, and the summer use of school grounds, gymnasiums and baths by children in crowded districts; (10) local taxation, merely supplemented by State aid, for the support of public schools; (11) the replacing of large school committees or boards by small boards and expert salaried executives; (12) skilled supervision for all grades of schools; (13) the establishment of rural high schools and the consolidation of rural district schools; (14) the building of character as the real aim of the schools; (15) the reading and study of the English Bible as a literary work; (16) the removal of professionalism and other abuses from student sports; (17) attractive school buildings and beautiful school grounds as agencies for educating public taste; (18) the highest ethical standards among teachers, and (19) professional fitness—preparatory training, experience, and meritorious service—as the sole basis for the appointment and promotion of teachers.

Conspicuous attention was directed during 1908 to the physical welfare of school children. Athletict, gymnastics, games, and dances were elaborated and organized. The Playground Association of America recommended State legislation and city and institutional provision for playgrounds; emphasized the importance of athletic games and folk dancing; elaborated model playground equipment and procedure; and began a library and museum of material bearing on the movement. Various cities continued their supervision of play and their domestic and industrial instruction during

the summer. Several cities founded summer camps. Similar to this development in physical education there was a broadening from mere class instruction in physiology and hygiene toward their full application in school buildings, curricula, and general procedure, thus putting into practice the teachings of the American School-Hygiene Association, organized in May, 1907, and of the second International Congress of School Hygiene, which met in London in August of that year. School physicians and nurses have made inspections for the detection of contagious and non-contagious disease, teachers have been trained to make tests of vision and hearing, and physical defects have been studied in their relation to mental retardation. The necessity for dental, medical, or surgical attention was made clear to Boards of Health and indicated to parents. Poorly printed textbooks and badly lighted school-rooms were looked to; and too great concentration in school and too much home-study became subjects of inquiry. The matter of proper nourishment for school children also received attention, especially in New York, where, in June, after agitation by social workers, the Board of Education found upon investigation about 1 per cent. of the school population underfed. This small proportion was accepted as in part a tribute to school instruction in domestic science. To further the general interests of this latter field of instruction, the Lake Placid Conference on Home Economics, which was organized ten years ago, was elaborated, at a convention in Washington in December, into the American Association of Home Economics.

Manual training appeared during the year chiefly in its elaborated form of industrial education. Institutions developed for this purpose prospered, and others were established and endowed. The first annual convention of the National Society for the Promotion of Industrial Education met in Chicago in January, stating the realization by manufacturers that commercial supremacy depends upon better technical training, the desire of educators for less bookish schools, and the demand of workers for a training suited to their needs; and stating its intention to study conditions, to recommend types of trade schools, and to articulate these with existing systems of public education. Later many state branches of the society were formed. Chicago inaugurated evening continuation schools for working boys and girls. The Massachusetts Commission on Industrial Education found many of its new evening industrial schools already taxed. The Conference for Education in the South adopted resolutions in favor of industrial and agricultural education in elementary and secondary schools. Nature-study continued a centre of interest. There was special effort in rural districts to develop nature-study into elementary agriculture, and agricultural high schools were established in each of the Southern states. The New York Nautical School acquired a larger school ship, but it is still the only public institution of its kind. The most conspicuous development in commercial education was the erection by Chicago of a 14-story public school building especially for day and evening business training. Instruction in citizenship was inaugurated in various schools by the establishment of pupil government after the fashion of the George Junior Republic (q. v.), which was

also duplicated in several regions during the year. School work in fine arts was encouraged by the enthusiastic reception of exhibits from sixty American cities of the Third International Congress of Art Education in London in August. American delegates at the conference emphasized the importance of such work for the development of public taste and artistic improvement of industrial products. American delegates also shared in the International Congress of Household Economy and Arts in Switzerland in September and in an interchange of language teachers with Prussia. Some 500 American teachers visited England during 1908, under the auspices of Mr. Alfred Mosely.

There was also in 1908 conspicuous discussion as to the educational importance of the theatre. The Children's Theatre of the Educational Alliance of New York, which, during five years, had entertained nearly 200,000 children, became incorporated independently, and announced courses for teachers in educational theatre methods. Similar organizations were begun in Boston, Cincinnati, and Los Angeles. Interesting pageants of education were given at the dedication of the new buildings of the Boston Normal School, and at the 23rd anniversary of the Brooklyn Training School for Teachers.

In special fields of education there seemed to be a growing tendency among public school systems to care for deaf, dumb, and crippled pupils hitherto entrusted to charity. The State of New York passed a law providing a reader for every blind student who is ready to enter college. Interest in the welfare of dull, backward, and feeble-minded children continued to increase; and the National Association for the Study and Education of Exceptional Children inaugurated a summer session for teachers of atypical children. Evening schools, lectures, and clubs for adults continued to develop, especially among recent immigrants for whom numerous special schools were opened. The several Indian schools away from reservations were continued, although a preference for reservation schools appeared to be growing in Congress. Public attention was drawn to the field of negro education by a negro girl's winning the inter-city spelling match held at Cleveland during the meeting of the National Educational Association. At the annual Conference for Education in the South at Memphis, Tenn., in April, encouraging progress was noted, the need for high schools and for compulsory education was emphasized, and Ambassador Bryce spoke in favor of higher as well as industrial education for the negro. The work and needs of Hampton and Tuskegee and similar less prominent institutes occupied their usual share of public attention, and funds were given to Berea College for the erection of the separate school for negroes required of it by the Kentucky legislature. On the invitation of the Southern Education Board, the Association of Southern State Superintendents of Education visited schools in New York and Boston in October.

In the field of sectarian education the Roman Catholic church emphasized its preference for that form of training by the erection and enlargement, through the efforts of orders, churches, and individuals, of all grades of parochial schools, until they enrolled, for example, one-seventh of the school pupils in New York. The fifth general convention of the Religious

Education Association meeting in Washington in February declared the need of a stronger public school conscience, as well as for more educational Sunday School instruction. The International Moral Education Congress meeting in London in September hoped for a greater ethical penetration of the whole curriculum, and various local organizations undertook to further these various ends.

The most widely discussed criticism of the year was based upon a report from West Point that of its candidates from every State and Territory, 84 per cent. failed in one or more subjects, 66 per cent. failed in two or more, 30 per cent. were physically unfit, and 8 per cent. failed in everything. Ninety per cent. of the candidates came from the public schools, where they had averaged an attendance of 9 years and 11 months. Of the failures geometry claimed 67 per cent., algebra 44, composition and literature 40, grammar 37, geography 21, history 15. Many comments traced the faults of the schools to the payment to teachers of salaries paralleling the wages of untrained laborers or of domestic servants. The scarcity of elementary school teachers in larger cities became pressing. Advocates of equal pay for men and women teachers failed to pass in the New York legislature, a measure similar to one vetoed by the Governor in 1907. New York City however raised its minimum salary from \$660 to \$720 at an annual cost of \$3,000,000, and Chicago increased its minimum from \$530 to \$630. An agitation for teachers' annuities was begun by the Association of Collegiate Alumnae. The financial support of public schools continued everywhere to increase, except that in some Southern localities the spread of prohibition carried with it the loss of school funds hitherto drawn from excise, and that several Eastern railroads withdrew their reduced rate students' tickets.

EDUCATIONAL LITERATURE. The following books were significant among the educational publications of 1908:

School Reports and School Efficiency by David S. Snedden and William H. Allen; *Medical Inspection of Schools* by Luther Halsey Gulick and Leonard P. Ayres; *American Playgrounds* by Everett B. Mero; *California Prize Essays on Moral Training in the Public Schools*; *Education and Industrial Evolution* by Frank T. Carlton; *Industrial Education* by Harlow S. Person; *Beginnings in Industrial Education* by Paul H. Hanus; *Principles of Secondary Education* by Charles De Garmo; *The Kindergarten in American Education* by Nina C. Vandewalker; *Personality in Education* by James P. Conover; *The Life and Work of Christopher Dock* by Marten G. Brumbaugh; and *Sheldon Jackson* by R. S. Stewart.

EGYPT. A country of northeast Africa, nominally dependent upon Turkey, but occupied by Great Britain. Its total area, excluding the Sudan (q. v.), is about 400,000 square miles, but its cultivated area covers only 12,976 square miles. Population, in 1907, 11,272,000, against 9,821,045 in 1897. The principal cities are Cairo, the capital, 640,000 (1907); Alexandria, 376,833 (1907); Tintah, 57,289 (1897); Port Said, 42,095 (1897).

EDUCATION. In 1907 there were under government inspection 4181 native rudimentary schools (*kuttabs*), with 164,506 pupils (11,745

girls), 2,761 schools receiving government aid to the amount of ££17,402 (££1 equals \$4.943). Exclusive of *kuttabhs* there were, in 1906-7, 505 schools established by foreign missions and native societies, with 92,107 pupils (70,455 Egyptian). The schools under the immediate direction of the government in 1907 included 143 *kuttabhs*, with 7,895 male and 2,666 female pupils; 34 primary schools, with 8,155 male and 401 female pupils; 4 secondary schools, with 1,909 pupils; 12 special and technical schools, with 2,110 pupils (47 female); and 11 colleges of medicine, law, engineering, teachers' training, military, veterinary, and Mohammedan law, with 1,475 students (44 female). In the budget of 1908 the expenditure of the Ministry of Education was estimated at ££450,450. There are two great Mohammedan theological schools—one at Cairo, with 10,000, and another at Tanta, with 5,000 students. In October, 1908, there was to be opened the first Egyptian university on the European model. The site was provided by native landowners, and \$50,000 were collected for the purpose. At first the lectures were to be on French, English, and Arabic literature, as well as on Mohammedan and general history. Teachers were to be gained from France, England, Germany, and Switzerland, and students were to be sent to Paris, Oxford, Cambridge, and Leeds, to act later as professors.

PRODUCTION. The Sinai peninsula furnishes most of the turquoises in the world. Marble, red granite, Oriental alabaster, and limestone are found. The output of salt in 1906 was 110,000 tons. Companies have been organized to exploit the ancient mining regions, and about 1,500 workpeople are employed. Considerable gold, copper, phosphates, and nitrates have been found, and there are indications of coal and oil. A report on the topography and geology of the western portion of the Sinai peninsula was recently published by the Egyptian Survey Department. The principal minerals found are gray granite, pure white sandstone very useful in glass manufacturing, iron and manganese ores.

About 61 per cent. of the population are engaged in agriculture. The state is theoretically the ultimate owner of the land, and the land tax, or rent, varies between \$1.75 to \$5.50 per feddan (1 feddan equals 1.03 acre). In 1907 there were under cultivation 6,426,000 feddans. The distribution of the land in 1907 is shown in the following table:

Extent of holdings in feddans	Landowners		Area	
	Number	Per-centage	Feddans	Per-centage
0-5	1,084,001	88.09	1,292,786	23.80
5-10	76,935	6.25	538,111	9.91
10-20	36,951	3.00	512,199	9.43
20-30	11,347	0.92	177,297	5.11
30-50	8,682	0.71	334,372	6.16
Over 50	12,665	1.03	2,476,007	45.59
Totals	1,230,581	100.00	5,430,772	100.00

Of the total number of landowners, 6,021 were foreigners, owning 665,226 feddans. In 1906-7 the area under wheat was 1,218,346 feddans; maize, 1,299,282 (1,261,186 in 1907-8); cotton, 1,663,224 (1,638,040 in 1907-8); sugar-cane, 41,008. The production of wheat in 1907 was 12,000,000 bushels; maize, 30,000,000 bushels; rice (average), 20,000,000 pounds; cotton, 716,588,591 pounds. Owing to unfavorable weather,

the cotton crop of 1908 was estimated in November at between 625,000,000 and 650,000,000 pounds. The Egyptian Cotton Commission, in its report published in the spring of 1908, arrived at the conclusion that the yield of cotton has been relatively diminishing in quantity and deteriorating in quality. The quantitative decrease since 1896 is shown in the following, by three-year periods:

Years	Average yearly area planted	Average yearly yield	Average yearly yield per acre
	<i>Feddans.</i>	<i>Pounds.</i>	<i>Pounds.</i>
1896-1898	1,083,998	583,703,515	538
1899-1901	1,206,778	578,885,336	481
1902-1904	1,324,605	617,988,105	458
1906-1907	1,551,396	634,660,951	410

According to the Commission, the principal causes of this condition are the enfeeblement of the land, rotatory irrigation, insect pests, and lack of fertilizers. The enfeeblement of the soil is largely due to biennial cropping and lack of fertilizers; a return to triennial cropping and more fertilization are recommended. As to irrigation, it is recognized that the system of rotation has been beneficial, but to insure good results the period should never exceed 18 days, or 14 days if water be obtainable. Insect pests, recognized as one of the principal causes, are favored by biennial cropping. The Commission also recommends that the cultivation of rice on high-lying lands be permitted in certain provinces.

The sugar-cane crop in 1906 was 700,000 tons; in 1907, 500,000; in 1908, 400,000. The sugar trade is principally in the hands of a French company, besides two or three small private refineries. The output of the company in the years ending October 31 was: in 1905-6, 63,634 tons of raw and 46,619 tons of refined sugar, out of 684,008 tons of cane; in 1906-7, 41,509 tons of raw and 31,144 tons of refined sugar, out of 414,877 tons of cane. The local consumption in 1905-6 was 75,000 tons of refined sugar; in 1906-7, 82,378 tons. In 1908 the company announced that experiments with Java cane have been successful, this variety promising a yield of cane double that of the native variety, with an equal percentage of sugar.

In 1907 it was decided to raise the Assuan dam 23 feet higher. This work is expected to take six years and its cost is estimated at ££1,500,000. It will add 950,000 acres to the cultivatable area. The foundations of the Esneh barrage, or dam, were completed in June, 1908, and the entire structure was to be finished by the end of February, 1909—a year earlier than had been originally expected. In 1908 the Nile flood was the highest since 1898.

FOREIGN COMMERCE. The imports and exports of merchandise in 1907 amounted to ££26,120,783 and ££28,013,185 respectively, and of specie ££7,768,190 and ££4,736,189; against ££24,010,795 and ££24,877,280 respectively for merchandise, and ££9,077,402 and ££2,067,706 for specie, in 1906. The principal imports in 1907 were: Animals and animal food products, ££1,280,811; cereals and vegetables, ££2,963,981; spirits, oils, etc., ££1,151,518; wood, coal, etc., ££3,407,021; textiles, ££7,006,851; metals and metal manufactures, ££3,960,854; tobacco, the cultivation of which is prohibited, ££716,201. The

principal exports in 1907 were: Cereals and vegetables, £E3,189,500; cotton, 6,859,223 cantars (99.5 pounds each), valued at £E23,597,851; cotton seeds, £E2,555,000; cigarettes, £E393,509. The trade with the principal countries of origin and destination in 1907 was as follows:

From and to	Imports	Exports
Great Britain	£8,492,848	£15,225,116
British colonies	1,299,888	134,470
Germany	1,392,381	2,252,964
Austria-Hungary	2,059,423	1,315,397
Belgium	1,027,590	90,251
France	3,168,890	2,040,533
Italy	1,361,457	791,044
Russia	676,868	1,599,580
Turkey	2,973,108	337,410
America (mostly U. S.)	572,704	2,101,785

According to United States returns, the imports of the United States from Egypt during the year ending December 31, 1908, amounted to \$12,049,918, and the exports to Egypt, \$1,766,232. The imports and exports of Alexandria in 1907 amounted to £E23,319,366 and £E27,453,314 respectively.

COMMUNICATIONS. In 1907 there were 1,743 miles of State railways and 711 miles of private railways. The length of telegraph lines was 2,898 miles. In 1906 the port of Alexandria was entered by 2,842 ships of 5,199,864 tons, and cleared by 2758 ships of 5,194,304 tons.

BANKS. The National Bank of Egypt had on December 31, 1906, a capital of £3,000,000 (sterling), reserve funds of £1,440,000 (sterling), and a note circulation of £E2,171,000. The Agricultural Bank had on the same date a paid-up capital of £3,740,000 (sterling), and a total of 228,060 loans outstanding, amounting to £E7,879,723. This bank lends money to the fellahs at 8 per cent. The government guarantees interest on the bank's capital at 3 per cent., and through its tax-gatherers collects the money due to the bank with the land tax. The post office savings banks had on December 31, 1906, deposits of £E331,072, due to 43,877 depositors, of whom 15,207 were Europeans.

GOVERNMENT. The nominal ruler of the country is the Khedive. The present Khedive, Abbas Hilmi, succeeded to the throne on the death of his father, January 8, 1892. There is a native Ministry, composed of 7 members; a Legislative Council of 30 members, of whom 14 are appointed by the government; and a Legislative Assembly, consisting of the ministers, the members of the Legislative Council, and 46 elective members. The functions of the Legislative Council are purely consultative. The Legislative Assembly must be summoned at least once every two years; it has no general legislative power, but no new direct personal or land taxes can be imposed without its consent. The general legislative authority rests with the Khedive and his ministers, behind whom stands the real ruler of the country—the British Financial Agent and Consul-General. Lord Cromer, who held that position since 1883, resigned in 1907, and was succeeded by Sir Eldon Gorst. The consular courts try the civil and criminal cases of their subjects; mixed tribunals, composed of native and foreign judges, deal with civil suits between persons of different nationalities and between natives and foreigners, and to some extent also with criminal offenses of foreigners.

The mixed tribunals have to be renewed every five years, the present term ending in 1910.

FINANCE. The revenue and expenditure in 1907 were £E16,367,818 and £E14,280,413. The budget for 1908 estimated the revenue at £E15,030,000, and the expenditure at £E14,730,000. The principal estimates of revenue were: Land tax, £E5,267,000; customs, £E1,880,000; tobacco excise, £E1,510,000; railways, £E3,525,000; post office and telegraphs, £E405,000; ministry of justice, £E1,260,000. The principal estimates of expenditure were: Civil list, £E277,000; administration, £E4,525,215; railways, £E2,193,658; post office and telegraphs, £E372,367; army, £E1,307,281 (Egyptian army, £E670,831; British army of occupation, £E146,250; pensions £E490,000); Turkish tribute, £E665,041; debt, £E3,931,071; Sudan deficit, £E379,763. The public debt stood on December 31, 1907, at £E94,782,340, exclusive of the domain loan, which stood on July 31, 1907, at £E1,066,920.

ARMY. The Egyptian army is under the command of a British general officer, with the title of Sirdar. The Sirdar in 1908 was Lieut. Gen. Sir Reginald Wingate, who was also Governor-General of the Sudan. In 1908 the Egyptian army numbered 18,273, including 10,280 infantry, 1,258 artillery, 789 cavalry, camel corps 629, Arab battalion 206. British officers to the number of 121 were serving in the Egyptian army. The British army of occupation for 1908-9 was fixed at 5,719. There is no navy.

HISTORY. The opposition was divided into two political parties, the Nationalists and the party of Constitutional Reform. The Nationalists, whose programme was an extreme one, were led by Mustapha Kamel Pasha. On his death (February 10, 1908) he was succeeded as leader by Ahmed Farid. Its demands included nothing short of the immediate evacuation of Egypt by the British. Both the Nationalist Party and the more moderate Party of Constitutional Reform demanded in their programmes the replacement of British officers with natives, the establishment of parliamentary institutions, and the granting of large sums of money for education. The programme of the Party of Constitutional Reform, whose leader was Sheikh Ali Youssef, may be summarized as follows: The authority of the Khedive to be maintained; the establishment of a representative parliament and of complete political and administrative control for the Egyptians over all Egyptian interests; a general and gratuitous system of primary education; the Arabic language to be employed in the government schools; the appointment of Egyptian officials according to their abilities, with a view to rapidly diminishing the number of foreigners in the administration; the jurisdiction of the mixed courts to be extended to criminal cases involving foreigners. In March resolutions were passed by the General Assembly demanding the use of Arabic as the only medium of instruction in all the Government schools, and the establishment of a municipality for Cairo. Sir Eldon Gorst's annual report, published in April, reviewed present conditions and deprecated any further extension of self-government, declaring that it was not desired by the great majority of the upper and middle classes at present, and that the country was not ripe for it. A measure, however, had been pre-

pared looking to the enlargement of the powers of the provincial councils, whereby they would act as advisory bodies, especially in matters pertaining to agriculture, communications, and irrigation. This report was sharply criticized by the Nationalists. During the year the agitation of the Nationalist press against the British occupation was carried on with great violence, and in the later months the fear of its spreading into Upper Egypt and the Sudan and leading to the massacre or capture of travelers in that region, compelled Sir Reginald Wingate, Sirdar of the British Army, and Governor of the Sudan, to issue an edict forbidding tourists to land on the banks of the Nile beyond certain points, or to visit the province of Bahr-el-Ghazel, and parts of Kordofan and of other provinces. At a meeting of the Legislative Council early in December, a motion was unanimously passed asking the Khedive's government for a law granting to the natives a share in the international administration.

EGYPT, EXCAVATIONS IN. See **ARCHÆOLOGY.**

ELECTRICAL COMMISSIONS, INTERNATIONAL. Two international electrical commissions were convened during the year, both in London. The first, the commission on electrical units, adopted definitive values for the concrete international ohm and ampere, and recommended the adoption by all government laboratories of the same manipulation, procedure, and sets of concrete standards for certifying the secondary standards of the various electrical units. The second, the international electrotechnical commission, took up the question of unifying the various national codes of rules for standardizing and rating electrical apparatus. The chief step taken toward this end was the adoption of a resolution that the metric system be the official international system.

ELECTRICAL INDUSTRIES, GROWTH OF IN 1908. The year 1908 in the field of electrical industries, as in many other lines of trade, was a period of "marking time." In some instances there was an actual falling off in comparison with the previous year, but at the end of 1908 all indications were toward an early resumption of a normal rate of growth. The following table was given by one of the leading technical journals as an approximation to what was probably done in the electrical business in the way of sales and earnings for the last two years:

	1908	1907
Electrical Apparatus	\$275,000,000	\$250,000,000
Electrical Railways	350,000,000	350,000,000
Central Stations	225,000,000	225,000,000
Telephony	200,000,000	200,000,000
Telegraphy and Cables	55,000,000	50,000,000
Isolated plant supply ..	100,000,000	75,000,000
Miscellaneous	50,000,000	40,000,000
Total	\$1,255,000,000	\$1,190,000,000

The decrease in the sale of electrical apparatus was due largely to the dearth of new electrical enterprises. As a whole, the railway and lighting industries were at a standstill, although in some of the larger cities, notably New York and Chicago, the volume of business reached new high levels. Telephony felt the effect of the general depression in the large cities, but this was offset by increased activity in the smaller towns and country districts. Telegraphy was crippled by the strike, and isolated plants

by the closing of factories and mills. See **DYNAMO-ELECTRIC MACHINERY, TRANSMISSION OF ELECTRIC POWER, TELEPHONY, ETC.**

ELECTRIC LIGHTING. The rapid rate of growth of the lighting industry, which was so prominent a feature in 1907, received a decided check in 1908, but considering the hard times the lighting business as a whole held its own remarkably well. During the year the principle of State control of the lighting industry and other public utilities became more firmly established. The work done by commissions already appointed has, on the whole, justified their existence and, in general, a spirit of fairness has been manifested toward both the consumer and the supply company. At the close of the year, public utility bills were pending or awaiting introduction in the legislatures of a number of states. The tendency, however, was to curtail the judicial powers of such commissions. For example, the bill proposed for the State of Connecticut contained a section making specific provision for court review of the decisions of the proposed commissions. The art of electric lighting has been advanced during the year 1908 chiefly by improvements in the tungsten and the other metallic filaments lamps, which were first introduced commercially in this country in 1907. The use of the tungsten lamp, in particular, became more and more general; its popularity was greatly increased first, by a reduction in price, and second, by the introduction of a 25 watt or 20 candle power size. Practically all sizes of these lamps were manufactured so that they could be set at any reasonable angle without danger of the filament breaking. Compared with the ordinary carbon filament lamp, the tungsten lamp was shown to be about three times as efficient and had twice the life (barring accidental breakage), but the first cost was about four times as much and the filament was far more fragile. The high cost and increased danger of accidental breakage, however, was more than offset by the increased efficiency and normal life.

The helion lamp which was heralded in 1907 as the most efficient of all metallic filament lamps, was still in the experimental stage, nor has the Haræus improved form of mercury vapor lamp, in which the containing tube is made of quartz instead of glass, been used to any great extent.

ELECTRIC RAILWAYS. The centre of interest in electric railroading during 1908 and the three years preceding was in the application of electric traction to existing steam railroads. During 1908 there were completed, in whole or in part, several important projects, on which work had been in progress for some years, and plans for extensive electrification on a number of important trunk lines both in this country and in Europe. On account of the heavy capital investment, it was not considered likely that electric traction would supersede steam for long distance haulage under ordinary conditions for some time to come. However, there were recognized certain conditions, namely, (1) for long tunnels, (2) for congested terminals, and (3) where heavy grades or the density of traffic are sufficient to justify the investment. Under the first class came the electrification of the Saint Clair tunnel of the Grand Trunk Railway, and the Cascade Tunnel of the Great Northern Railway; at the end of the year the former was in successful operation and construc-

tion work on the latter was practically completed. The first is a single-phase system; the latter is a three-phase system and was noteworthy as being the first three-phase installation in the United States. The Hudson and Manhattan Railroad also opened its first tunnel for regular traffic in the early part of the year; the trains were operated on a direct-current third-rail system. Under the second class were the New York Central and the New Haven roads in the vicinity of New York, which have now been operated electrically for over a year; each of these roads was planning to extend its electrical service. Following the lead of these two roads, the Pennsylvania Railroad Company was planning to electrify its New York terminal, and toward the end of the year it awarded a contract amounting to approximately \$5,000,000 for equipment for this purpose, including 100 locomotives. The Illinois Central Railroad also adopted plans for the electrification of its Chicago terminal. The electrification of mountain divisions of trunk lines progressed more slowly; the work of the Southern Pacific Railroad undertaken in 1907 was held up on account of financial difficulties, but it was deemed likely to be resumed at a not distant period. The Chicago, Milwaukee and Saint Paul Railroad also adopted plans for the electrification of the mountain division of its Pacific Coast extension.

In Europe there was likewise a considerable advance in the electrification of trunk lines. In Italy about 1000 miles of steam railroad lines either had been changed over to electrical operation or were undergoing this change; the necessary power being derived from various hydro-electric plants. In Sweden, Switzerland and Bavaria the electrification of the state railways was under consideration; in all these countries there being ample power for this purpose. During the year 1908 a single-phase 6000-volt locomotive was also tried out on the experimental track of the Prussian state railways.

The single-phase system for electrical railways has been steadily growing in favor for the last three years. A reliable estimate made in the latter part of 1908 placed the total number of single-phase lines at 27 in Europe and 28 in America, with a total mileage of 782 and 967 miles respectively. Several of these roads were equipped with 15-cycle apparatus, the advantage of this frequency over the standard of 25 cycles being chiefly in a reduction in the weight and improved commutation of the motors. The first 15-cycle line in the United States, between Visalia and Lemon Grove, California, was put into operation in the latter part of 1907. An interesting 25-cycle line completed in the early part of 1908 was the Washington, Baltimore and Annapolis Railway. The plan of connecting these cities by a high speed electric railway had been under consideration for ten years or more and it was for this particular line that the single-phase commuting motor was first proposed (1902) for railway work in the United States. During the year was also completed the first section of the 1200-volt direct current line between Indianapolis and Louisville, this being the first high tension direct current railway in the United States. A number of other new interurban roads as well as numerous extensions to existing roads were put into operation both in this country and in Europe. The

increase in mileage and equipment of city street railways during 1908 fell considerably below the average rate of growth previously maintained.

ELECTRON. See PHYSICS.

ELEMENTS. See CHEMISTRY.

ELEVATORS. The installation of high-speed express elevators to the forty-first story of a tower office building and the readiness of manufacturers to go even higher in the case of other structures either in course of erection or proposed, indicated that in 1908 the engineering side of the elevator industry had been developed to a high degree of efficiency. The type of elevator found available for the highest buildings and as actually installed in the lofty tower of the Singer Building and as was planned for the still higher tower of the Metropolitan Life Insurance Company was the Otis direct traction electric elevator. In this form of elevator the electric motor is usually installed at the top of the elevator shaft and carries on its armature shaft a sheave or pulley around which the cable supporting the car and the counterweight passes. The counterweight on the opposite end from the car is of such amount that it acts to balance the weight of the car so that any excess of weight on either side is the load on the motor. The important difference in weight caused by the lengthening or shortening of the cables on one side or the other is compensated by chains which may rest either at the bottom of the pit when the car is at a low point on its travel and there is a greater length of cable on its side, or which may be drawn up as the car ascends. The tractive effort of the motor is exerted on the cable which makes a half turn on the sheave of the armature shaft, and then passes around an idler sheave and again over the main sheave. The speed of the cable and consequently of the car is of course equal to the circumferential velocity of the motor sheave, and the speed of the motor is controlled by a switch in the car worked by the operator. In the Singer tower the elevator going to the 41st story has a rise of about 550 feet, which was the record distance for an elevator in 1908, but the new installation of the Metropolitan Life tower involved an elevator of the same type running from the basement to the 44th story with a rise of 586 feet 1½ inches. There is also an elevator from the basement to the 41st floor with a rise of 537 feet 7 inches and four from the first to the 41st floor with a rise of 525 feet. The Singer Building elevator plant also contains three elevators to the 35th floor and four to the 13th floor, and in the adjoining and connected Bourne Building there are three elevators to the 13th floor and one to the roof, while in the Singer Building proper three elevators run to the 13th floor. Each elevator has a capacity of 2500 pounds at a speed of 600 feet per minute with a car area of about 35 square feet and is equipped with telephone and megaphone, so that each car is constantly in communication with the starter or the engineer. The doors are equipped with pneumatic opening and closing devices and each machine has a recording wattmeter and mileage counter so that the power per car mile is readily obtainable. A remarkably large installation of traction elevators was placed in the Terminal Building in New York City and consisted of 39 such



ISIDOR H. CORIAT, M.D.



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THE LEADERS OF THE EMMANUEL MOVEMENT
THE REV. DR. ELWOOD WORCESTER



THE REV. DR. SAMUEL MCCOMB

passenger elevators, 22 of which make the run to the 21st and 22nd stories, while the others are for local traffic. While not realizing the extreme heights of the direct traction elevator, the plunger hydraulic elevator has been found useful and available for certain classes of service and a notable installation was under operation in the City Investing Building, New York City. Here there are 21 elevators, seven of which run to the 26th floor and have a travel of 368 feet, being the highest plunger elevators ever installed. In this type a deep hole is drilled in the ground to carry the cylinder in which the plunger bearing the car on its upper extremity moves. By valves controlled from the car water under pressure is admitted to or passes from the cylinder permitting the plunger to rise or fall as desired. In 1908 the elevator engineer was ready to meet any demands of the architect and even the proposed 62-story building for the Equitable Life Assurance Company was believed to present no unsolvable elevator problems.

ELLIOT, CHARLES WILLIAM. President of Harvard University, resigned that position on October 10, 1908, making May 19, 1909, the date on which his resignation should become effective. The resignation was "regretfully accepted" at a meeting of the fellows of Harvard College on October 26, 1908, and was announced by the Harvard Board of Overseers on November 4, 1908. Mr. Eliot was born in Boston, on March 20, 1834, prepared for college at the Boston Latin School, and graduated at Harvard in 1853. He was a tutor in mathematics, and studied chemistry at Harvard in 1854-58, was assistant professor of mathematics and chemistry at the Lawrence Scientific School of the university in 1858-63, and continued his study of chemistry in Europe in 1863-65, meanwhile investigating educational systems in that country. In 1865 he became professor of analytical chemistry at the Massachusetts Institute of Technology and he held that position until 1869, when he became president of Harvard. He began at once thoroughly to reorganize the university, introducing new methods of teaching and securing, as the occasion offered, the best teachers to be had in the country. He introduced at Harvard the elective system, which has greatly improved the university's educational efficiency, and has since been adopted to a greater or less extent by many of the more important American institutions. He is generally considered the foremost American educator of his time. Mr. Eliot's publications include *More Money for the Public Schools* (1903); *John Gilley* (1904); *The Happy Life* (new edition, 1905), and *Four American Leaders* (1906).

EMBANKMENT. A large embankment, to protect Fort St. Philip, La., from the flood waters of the Gulf, was being built in 1908 along the marshy ground of the gulf coast. Steel sheet piling was used as a core wall, the piles interlocking and being coated with asphalt to make them watertight, while the joints were filled with cement grout. The piles, which are 19 ft. long, project 5 ft. above the top of the levee and for this height were incased in a reinforced concrete wall 6 ft. high and 12 in. thick.

EMERSON, EDWIN. An American clergyman, man of letters and United States envoy, died on November 4, 1908. He was born in

New York City in 1822, graduated at Princeton in 1846, and at the Princeton Theological Seminary in 1849. With Noah Webster he practised law for a time at New Haven, Conn., then reentered the Presbyterian ministry, and was pastor at Dobbs Ferry, N. Y., and in Greencastle, Pa. During the Civil War he went to London and Paris as secret envoy from the United States. He remained in Paris until 1870, and then moved to Berlin, returning to this country in 1889. In 1897 he went to Japan, where he remained for the rest of his life.

EMIGRATION. See IMMIGRATION AND EMIGRATION.

EMMANUEL MOVEMENT. This movement, deriving its name from the Emmanuel Church (Episcopal) in Boston, Mass., where, in November, 1906, a "class for the treatment of nervous disorders" was organized, is an outgrowth of the "Emmanuel Church tuberculosis class," which sought the cure of consumptives in the slums without removal from their homes, by approved medical methods "plus discipline, friendship, encouragement and hope." Encouraged by what they deemed the success of this tuberculosis class, the rector, Rev. Elwood Worcester, D.D., Ph.D., and others, after consultation with leading neurologists, determined to begin similar work among the "nervous and morally diseased." Dr. James J. Putnam, of the Harvard Medical School, presided at the preliminary meeting. He is not now, however, associated with the movement and said in a letter to the *Boston Herald* of November 20th, 1908, "While I have a high respect for the characters and purposes of its founders, I am convinced that the movement is a mistake. It is clear that clergymen, without adequate preparation, are assuming responsibilities of a kind that physicians are not qualified to assume until after years of study and training." Other Boston physicians, however, Drs. Mumford, Pratt, Goldwait and Richard C. Cabot, have agreed to act as an Advisory Committee to the Church, and have expressed an opinion that under certain rules adopted by the Emmanuel clergy "the fundamental object of the movement deserves the support of all physicians and the community generally."

The fundamental principle is thus formulated: "The effective coöperation of physician and minister is of value to many sick persons. Since character is an important factor in the cure of many diseased conditions, especially of the nervous system, we believe that any one who can help to guide, strengthen and enlighten the patient by the influence of moral and religious teaching will be of genuine assistance to the patient and to the physician in charge of the case. In rendering such assistance at the physician's request and with his coöperation we believe the clergyman to be entirely upon his own ground, fulfilling in relation to the individual that time-honored office of ethical and spiritual instruction which in the past he has exercised chiefly at long range to congregations from the pulpit."

The rules provide that the sick are to be received only after examination by, and on the approval of, a physician, whose report is filed with the church records, and that no person shall be treated or referred to any specialist unless with the approval of a physician; so that it shall rest "wholly with the physicians

of this community [Boston] to decide whether a patient should be referred to a neurologist or other specialist, and which cases, if any, are suitable for treatment by moral and religious education at Emmanuel."

A like movement exists in St. Mark's Church, New York, approved by prominent physicians, and in other localities. Thus the Emmanuelists are to be differentiated from "Christian Scientists," "faith curers" and so-called "mental healers" generally by their recognition of the actuality of physical disease and the need of its diagnosis and treatment by medical men. Their pretensions are also more modest, in which regard they are unlike the English Society of Emmanuel, a distinct organization, which, in its official statement of 1906, disclaiming similarity in its aims and practices from those of suggestion or what is called "faith healing," professes to have cured completely, by means of laying on of hands in prayer, cancer and locomotor ataxia, as well as merely functional derangements; whereas Emmanuelism claims that "it is in the field of the functional neuroses that all its real victories have been won," and while not denying the possibility of graver cures says: "An authentic instance of recovery from organic disease through psychical means is what we are waiting for." By thus limiting the class of cases treated it is thought to avoid one valid objection to psychotherapeutics, "its employment in diseases which obviously require physical interference, with the result that many patients have died through sheer neglect."

It is also admitted by the Emmanuelists that while "the active agent in all so-called moral recoveries is faith," they "have made the freest use" not only of suggestion but of subsidiary aids, such as electricity, massage and, to some extent, chiefly with alcoholics, hypnotism. They make no claim to special personal powers, explain the nature of the means employed and "avoid all fetiches and material adjuncts as means of suggestion and rely only upon moral, spiritual and rational means."

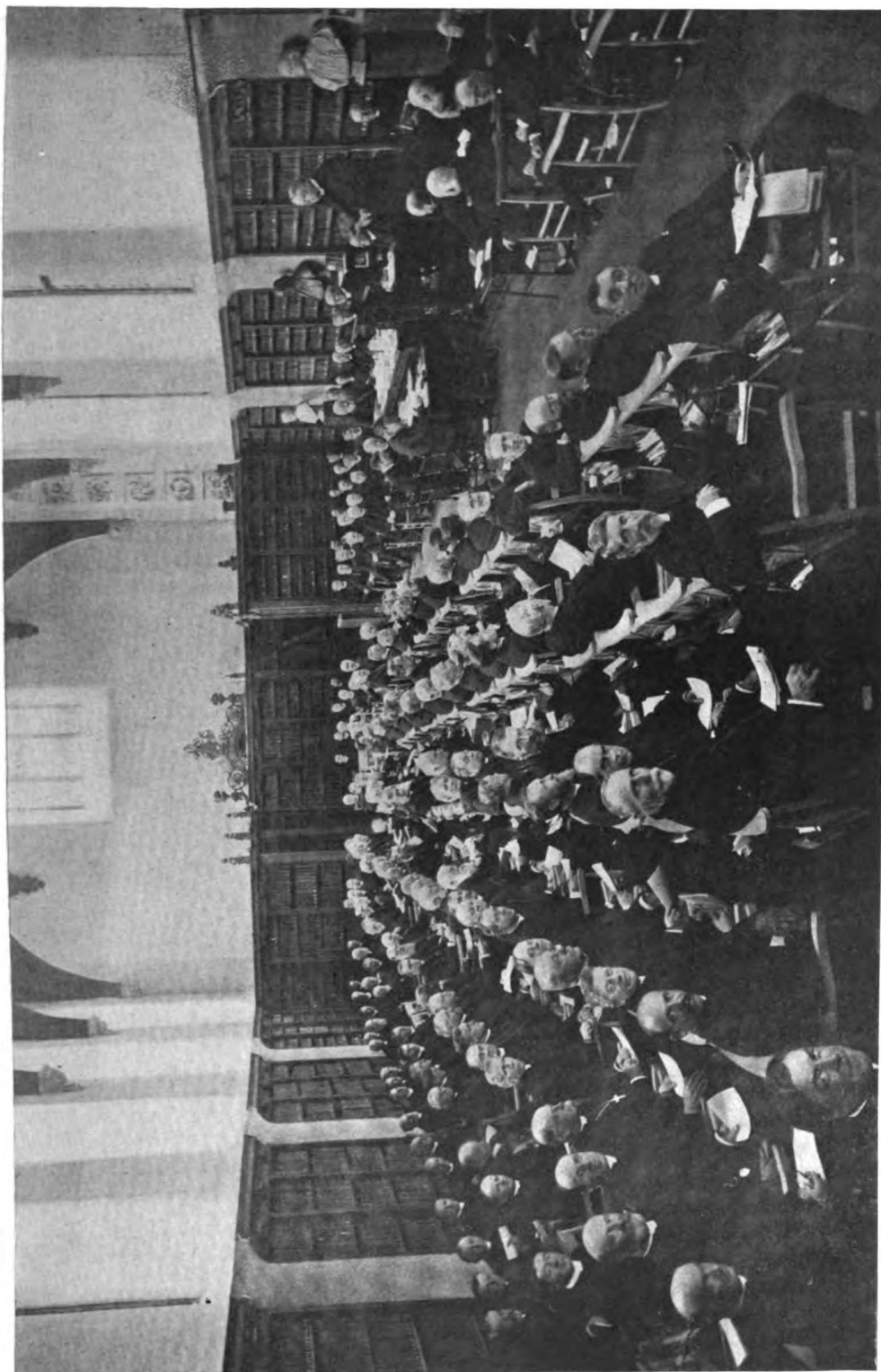
Isadore H. Coriat, M.D., one of the collaborators in *Religion and Medicine*, the movement's official exposition, says that the necessity of thorough neurological, psychological or general medical examination before instituting any form of psychic treatment cannot be too often reiterated, that being the only way to avoid grave errors. This he illustrates by a case of incipient cancer of the stomach causing neurasthenic symptoms and only revealed by chemical examination, and by another wherein hysteria had been treated as an organic disease of the stomach. He expresses disbelief that all so-called functional nervous diseases can be treated by psychotherapeutics.

The Emmanuel Movement, therefore, differs from most eccentric schools of healing, religious and mental, by the character of its promoters, their recognition of physical disease and the efficacy of medical science in its treatment, and by their expressed willingness to subordinate their practice to the direction of medical men. It is avowedly an attempt by clergymen to aid physicians in the field of psychotherapy, rather than to act as independent practitioners, and to coöperate also with the "social workers." How far this aim can be effected, how far it will be preserved, how far the practice of the

clergy, especially if the movement become widespread, will fall within the purview of laws regulating medical practice, are topics not susceptible of discussion here. The problematic character of the work is admitted by Dr. Worcester's own expression: "What will be the outcome of this movement no man can say."

EMPLOYERS' LIABILITY. Under the stimulus of President Roosevelt's insistence Congress enacted in June, 1906, a law making interstate commerce carriers liable for injuries to their employees received during employment. The constitutionality of this law had been upheld by some United States courts and denied by others. Two cases (*Houard v. Illinois Central Railroad* and *Brooks v. Southern Pacific Company*) brought to the United States Supreme Court on appeal were decided on January 6, 1908. By a vote of five to four the law was held to be unconstitutional. This law destroyed as defense against liability the ground of contributory negligence by providing that "the fact that the employee may have been guilty of contributory negligence shall not bar a recovery, where his contributory negligence was slight and that of his employer gross in comparison." The law extended to any employee of an interstate common carrier. The grounds for unfavorable decision of the court were as follows: (1) The power of Congress to regulate commerce between the States does not include power to regulate the relations of employer and employed, i. e., these two powers are separate and distinct. Justices White, Day and Moody were of the opinion that Congress could regulate relations of employer and employed in so far as the latter are engaged in interstate commerce. On this point Justice Peckham was in doubt and Justices Fuller and Brewer non-committal. (2) That clause of the law extending its provisions to "any employee" was held unconstitutional because it included employees who might not at the time of injury be engaged in interstate traffic. Justices White, Peckham, Fuller, Day and Brewer concurred on this point. The court held unanimously that the law may properly apply to all persons engaged in interstate commerce. Justice Moody dissented from the second conclusion of the majority on the ground that any court in interpreting and applying the law could discriminate between persons thus employed and those employed only in interstate commerce. The one point of agreement was the negative one that Congress cannot make interstate common carriers responsible for injuries to employees not engaged in interstate commerce.

On February 1, President Roosevelt sent to Congress a vigorous message urging the enactment of a new law drawn to meet the court's objections. Bills were drawn by Senators Knox and La Follette and by Representative John A. Sterling, of Illinois. On April 15 the Sterling bill passed the House by a vote of 302 to 1 (Congressman Littlefield, of Maine), and on the following day it passed the Senate unanimously. It was signed by the President April 22. The new law very specifically confines its provisions to interstate carriers by railroad and to common carriers by railroad in Territories, the District of Columbia, the Canal Zone and other territory governed by Congress. It applies to all cases of injury or death due in whole or in part to the acts or negligence of any officers, agents or employees or to the mechanisms of



Courtesy of the "Churchman"

THE LAMBETH CONFERENCE OF 1908
A GROUP OF BISHOPS IN CONFERENCE AT LAMBETH PALACE, REPRESENTING ALL
BRANCHES OF THE ANGLICAN CHURCH

such a carrier. As in the preceding law, it reverses the "fellow-servant doctrine" that an employee who suffers through the fault of a co-employee cannot recover damages, and specifically provides that an employee's own negligence shall not bar him from recovering damages. It provides, however, that such contributory negligence shall reduce the amount of damages in proportion to its importance as a factor in the accident. The fact of contributory negligence and its importance shall be determined in each case by jury. Moreover contributory negligence shall be entirely disregarded when the accident is due to the failure of an employer to observe a statute designed to protect employees. The liabilities imposed by the statute cannot be avoided by any sort of special contracts with employees, though damages may be reduced by an amount equal to any insurance provided by a railroad for its employees. Suits for damages must be brought within two years of the time of injury.

As an example to the States and to carry out the doctrine of responsibility of employers for the safety of employees, Congress passed on May 30 an act introduced by Representative Alexander, of New York, establishing the liability of the United States government for injuries incurred by those of its employees engaged as artisans or laborers in arsenals, navy yards, construction work on rivers, harbors and fortifications, hazardous work in connection with the Panama Canal or Reclamation Service and in government manufacturing establishments. Any such employee so injured while at work as to suffer disability for at least fifteen days "shall be entitled to receive for one year thereafter, unless such employee, in the opinion of the Secretary of Commerce and Labor, be sooner able to resume work, the same pay as if he continued to be employed." The law makes exceptions of those cases of injury due to the misconduct or negligence of the injured employee himself. If employee is killed and leaves a widow, children under sixteen, or dependent parents, compensation equal to his usual pay shall be paid to these dependents. Compensation is granted only upon application and this must be made as soon as possible in case of injury and within 90 days in case of death.

In foreign countries the most notable feature was the growing sentiment in France, Germany and England in favor of an extension of employers' liability to agricultural employees.

ENGINEERING. See articles on various subjects, as COAL, DYNAMO-ELECTRIC MACHINERY, ELECTRIC INDUSTRIES, ELEVATORS, IRON AND STEEL, SHIPBUILDING, STEAM TURBINES, ETC.

ENGLAND, CHURCH OF. A religious denomination, which is the "Established" Church of England, and the dominant religious body of that country. At the head of the church in England and Wales are 37 bishops, two of whom are archbishops. The bishops superintend the work in each diocese and are aided by the suffragans or assistant bishops, of whom there are 32. There are two convocations or provincial synods of the clergy of the Church of England for the two provinces of Canterbury and York. The Archbishop of Canterbury is the highest dignitary of the church and has the title of Primate of all England. There are in England and Wales about 30,000 clergy of the Church of England, of whom 13,930 are bene-

ficed and 6664 are assistant curates. The number of communicants in the church is estimated approximately at 2,500,000. The church sittings number about 6,000,000. The revenues for church property for the year ending Easter, 1907, were £5,753,557. During the same period there were contributed for home missions £719,605; for foreign missions £836,921; for educational work £79,435; for the clergy, educational and charitable assistance, including funds for widows and orphans, £271,814; for philanthropic work, £580,797. The total sum contributed for ecclesiastical purposes representing the voluntary offerings of the church for the year ending Easter, 1907, was £7,462,244.

The most important event in the history of the Church of England during the year was the Lambeth Conference and the Pan-Anglican Congress, which was arranged as preliminary to the sessions of the Conference. The Lambeth Conference was the 5th conference held and it was opened at London on July 4th and continued in session until August 5th. The Conference comprised the bishops of the Anglican communion. As the result of the Conference there was issued an encyclical letter, which was followed by 78 resolutions in which the mind of the Conference was expressed. Two of these resolutions were on the subject of Faith and Modern Thought; 8 on the Supply and Training of the Clergy; 9 on Education; 7 on Foreign Missions; 4 on the Prayer Book; 2 on the Holy Communion; 3 on Ministries of Healing; 1 on the Anointing of the Sick; 7 on Marriage Problems; 10 on the Moral Witness of the Church; 1 on the Observance of Sunday; 3 in regard to the creation of a Central Consultative Body consisting of bishops chosen by the different provinces throughout the world; 1 on Religious Communities; and 21 on the Various Phases of the Relations between the Anglican Churches and other Christian Bodies. The Pan-Anglican Congress was attended by delegates from Anglican dioceses from all parts of the world. The American representation was very large. At the final service, held at St. Paul's Cathedral, a thank offering from every part of the world was presented, amounting to £333,208. This fund is to be divided among the different parts of the Anglican communion by a commission appointed for the purpose.

ENTERIC FEVER. See TYPHOID FEVER.

ENTOMOLOGY. The YEAR BOOK for 1907 referred to economic work in the United States, especially against the gipsy and brown tailed moth and the San José scale. The third annual report of the superintendent of the work for suppressing the gipsy and brown tailed moth appeared in 1908. The report dealt with the methods employed, both as to direct treatment, as spraying with insecticides, etc., and indirect, as inoculation with parasites. The cost of spraying was said to be from 76.3 cents per tree in woodlands, where the trees are from 30 to 60 feet high, down to as low as 3 cents per tree along roadsides, where trees are from 20 to 60 feet high. At Stonington, Conn., a small colony of the gipsy moth, occupying an area of about one square mile in extent, had established itself. An average of ten men were employed in fighting this colony, and during the year had kept it within bounds. Sanderson reported colonies of this moth in New Hampshire, at a distance of miles from any other known infected

locality. This he interpreted to mean that there was some as yet undiscovered method of distribution. Professor Kincaid, of the University of Washington, was sent to Japan by Dr. L. O. Howard, to attempt to secure parasites of the gipsy moth. For the expense of the work against the gipsy and brown tailed moths, the U. S. Dep't. of Agriculture had, for 1908, an appropriation of \$250,000. The cotton boll weevil was estimated in 1908 as doing an annual damage of \$25,000,000, in the southern part of the United States. It was suggested that the most practical method of treatment was to pick the cotton as early as possible, and immediately destroy all stalks of the cotton plants as well as weeds, etc., growing along fences. This, by destroying their food, will largely prevent the later broods from developing, and, since these are the most likely to hibernate, will greatly decrease the number ready to attack the crop of the following spring.

The continued spread of the elm leaf beetle in the United States was still attracting the attention of the economic entomologists. Dr. Howard reported that he had secured from Dr. Paul Marchal of Paris, the eggs of a chalcidid, *Tetrastichus xanthomelænae* which the latter had observed as a parasite of the beetle at his home near Paris. During the summer of 1908 specimens of the parasites were liberated in eastern Massachusetts, at Ithaca, N. Y., at New Brunswick, N. J., and at Washington, D. C. Satisfactory progress was reported from all these localities except Ithaca, where the parasites all died. It is confidently expected that by 1909 they will have increased so much in the other places, that some definite effect on the beetle will be observed.

From New Orleans and the adjoining country comes the report of a serious insect pest in the form of an ant, *Iridomyrmex humilis* Mayr., which promised eventually to be as injurious in that section as was the gipsy moth in Massachusetts. It probably was imported from South America in sacks of coffee, and was popularly known in New Orleans as the Argentine ant, though in other sections it was generally known as the "New Orleans ant." It was said not to be affected by the usual repellants, and to swarm through all the rooms of dwelling and business houses, so that it became a matter of very great difficulty to keep foodstuffs free from it. In some parts of Louisiana it was reported as doing great damage to farmers' crops, both because it feeds on orange buds and the ripe figs, and on seeds such as lettuce which it takes from the ground after sowing and before they have time to sprout. In addition it colonizes a scale insect on sugar cane, thus indirectly doing much damage to this crop.

From Massachusetts came a report of a parasitic fly, *Protocalliphora chryorrhæa*, which lays its eggs on the young bluebirds. In one case observed, out of eight birds in two successive broods, only one survived, the rest having been killed by this parasite. Marchal, in France, and Woodward and Pierce in the United States discussed the question of parasitic control of insect pests, and agree that so far from being a simple question, it really is a most complex one. According to Marchal, in considering the value of any insect parasite in this connection, we must consider, in addition to the fecundity of the parasitic species, at least eight other factors. 1. What secondary parasites may at-

tack the primary, and are there possibly tertiary parasites on these? 2. Are there coparasites, or other species living on the same host? 3. Are there other plant feeding species beside the host species? 4. Are there insectivorous birds which attack both host and parasite? 5. Are the climatic conditions favorable or unfavorable to either host or parasite? 6. The rapidity with which generations are developed. 7. Is there a tendency in the host species to delay the development of certain individuals for a longer or shorter time? 8. Does the parasite show any tendency toward a process similar to ? Pierce and Woodward argued along essentially these same lines, especially calling attention to the fact that unless a parasite is able to adapt itself to the environment as well as is the host, and able to multiply as fast as it, there is no practical advantage in importing the parasite. In *Farmers' Bulletin* No. 155, 1908, Dr. L. O. Howard published a popular account on "How Insects Affect Health in Rural Districts," dealing especially with mosquitos and flies as carriers of malaria and yellow fever, and typhoid fever, respectively. M. E. Robaud reported to the Paris Academy of Sciences some experiments which strengthened the theory that pathogenic trypanosomes are carried by the tsetse fly. When the fly has fed on the blood of an infected animal the trypanosomes may be seen in the blood inside the insect's proboscis. Here they multiply and form little colonies, and are set free if treated with salt solution. He did not test the result of experimental infection by the bite of the fly.

In addition to the gipsy moth appropriation mentioned above, the Bureau of Entomology received \$184,960, and the Bureau of Animal Industry, for the eradication of the cattle tick in the South, received, in addition to its regular appropriation of \$1,080,860, the sum of \$250,000.

In view of the part which the common house fly plays in the transmission of disease, mainly typhoid, a series of papers by C. Gordon Hewitt, appearing in the *Quarterly Journal of Microscopical Science*, on the "Structure, Development and Bionomics of the House Fly," were of interest. The papers so far as printed in 1908 dealt mainly with the early development. The author noted that in nature, these animals breed more readily on fermenting horse manure than on any other substance.

EPILEPSY. The relation of eyestrain to epilepsy was investigated by Moore and Hodskins at the Massachusetts Hospital for Epileptics. Eighty-eight cases were placed on full mydriasis (pupil dilatation) so as to eliminate eyestrain and paralyze accommodation for one full month. The average number of epileptic seizures during this period was compared with the average of other months and found not to vary materially. The authors conclude that while eyestrain may play an important rôle in individual cases, ocular defects have no general relation to the production of the disease. Spratling described the work at the Craig Colony for epileptics at Sonyea, N. Y., and considers the granting of the legal right to make autopsies on the brain and spinal cord of epileptics dying there, together with the study of living matter, the secretions, the psychic and organic life, as the two most promising steps in the study of epilepsy in recent years. He predicts that within 25 years this disease will be as curable

as insanity is now, namely, in from 25 to 30 per cent. of all cases. To an already impressive mass of statistics showing the direct relation of alcoholism in parents to epilepsy in their children, Lundborg contributed the results of a study of the records of the Upsala Hospital in Sweden. The records point to the frequent coincidence of parental alcoholism and filial epilepsy and also to the association of insanities and epilepsy in brothers and sisters. In 32 instances out of 2000 records epilepsy occurred in one member of a family and mental derangement in another.

EPISCOPAL CHURCH. See **PROTESTANT EPISCOPAL CHURCH.**

EPISCOPAL CHURCH, REFORMED. See **REFORMED EPISCOPAL CHURCH.**

EPWORTH LEAGUE. An organization of the young people of the Methodist Episcopal Church, founded in 1892. During 1908, 493 new charters were issued to senior chapters and 367 to junior chapters. Among its other branches the League carries on important work among the negroes in the South and in home and foreign missions. The training of workers in the Epworth League Institute was carried on vigorously in 1908. The League is the largest society of young people in the world.

ERICHSEN, L. MYLIUS. A Danish explorer, died of exposure on the northeastern coast of Greenland, about November 25, 1907. See **POLAR RESEARCH.**

ERITREA, OR ERYTHRÆA. An Italian colony on the African coast of the Red Sea. Area, about 50,000 square miles, including some islands in the Red Sea; population in 1906, 279,551 (274,944 natives, 3949 Italians, including the militia, and 658 others), largely nomadic. Massowah, the principal port, has 2275 inhabitants. Asmara, not far from the Abyssinian border, is the capital. The climate is equatorial. There is hardly any agriculture, owing to the lack of water. Pasture is abundant, and camels, cattle, sheep, and goats are raised. Pearl fishing is carried on at Massowah and the Dahlak archipelago by the Italian Pearl Fishery Company, the annual value of the product being about 250,000 lire (1 lire equals 19.3 cents) for pearls and 800,000 for mother-of-pearl. Gold mining is carried on near Asmara. The principal exports are hides, mother-of-pearl, wax, butter, gum, ivory, and coffee. The imports are cotton goods, durrah, flour, wool, and wine. In 1906 the imports of Massowah amounted to 10,100,184 lire, the exports, 2,444,484 lire, and the transit trade, 2,081,728 lire. There is a railway of 47 miles from Massowah to Ghinda, which is being continued to Asmara; in 1908 the Ghinda-Nefasit section, 16 miles long, running along the sides of the hills between Ghinda and the highlands, was completed. Another section, 9 miles long, starts northwest from Asmara. In 1908 there were 869 miles of telegraph line connecting Massowah, Assab, Perim, and Addis Abeba, capital of Abyssinia. The budget of the Italian colonies for 1908-9, which covered also Italian Somaliland (q. v.), estimated the local revenue at 3,118,500 lire, and the subvention of Italy at 7,557,960 lire. The Governor in 1908 was S. Raggi. By the treaty of May 16, 1908, with Abyssinia, the boundary line of Eritrea runs from the eastern point of the boundary between Eritrea and Tigré (Mareb River), as determined by the convention of 1900,

in a southeast direction parallel with the coast, at a distance of 60 kilometers (37.26 miles) from the latter, down to French Somaliland.

ESMARCH, JOHANNES FRIEDRICH AUGUST VON. A German surgeon, died on February 23, 1908. He was born at Tönning, in Schleswig-Holstein, on January 9, 1823, studied medicine at Kiel and Göttingen, and served as a surgeon during the Danish War of 1848. In 1854 he became director and in 1857 professor in the clinic of the Kiel Hospital. He was again in active field service during the Schleswig-Holstein War of 1864, and during the Franco-Prussian War he was physician-general and consulting surgeon to the army. Thereafter he renewed his association with the Kiel Hospital, and also was consulting surgeon at the principal military hospital in Berlin. For many years he was considered the leading authority on gunshot wounds; he invented the bloodless method of operating on the extremities by bandaging and pressing the blood out of the limb before applying the tourniquet; and he introduced many improvements in barrack hospitals, ambulances and field service appliances. Es-march is familiarly known as the originator of the triangular bandage bearing his name included in the "first aid" packages, also his idea, which is carried in some form or other to-day by every soldier. His plan was to have the soldier apply an antiseptic dressing to a wound which would not be disturbed until a proper hospital was reached. In recognition of the value of his services he was made a Privy Councillor in 1897. His many contributions to medical literature include: *Ueber Resektionen nach Schusswunden* (1851); *Beiträge zur praktischen Chirurgie* (1853-60); *Ueber den Kampf der Humanität gegen die Schrecken des Krieges* (1869); *Der erste Verband auf dem Schlachtfelde* (3d. ed. 1899) and *Handbuch der Kriegschirurgischen Technik* (1877 and afterwards).

ESPERANTO. See **INTERNATIONAL LANGUAGE.**

ETHICAL CULTURE, SOCIETIES FOR. A system of societies formed in New York City in 1876 by Felix Adler to provide a centre for persons who had lost their attachment for traditional creeds and desired to aid in promoting the moral development of the individual and of society. To this end it engaged in various forms of philanthropic activity, inaugurating such work as district nursing, and making education its special concern. The Ethical-Culture School had its beginning in 1878 in the establishment of the first free kindergarten in the State. The membership of the Society in 1908 was over 1,000, and the membership of the societies in Chicago, Philadelphia, and St. Louis numbered about 700. These societies are federated in the American Ethical Union, which conducts a Summer School of Ethics, held in 1908 at Madison, Wisconsin, in connection with the summer session of the University of Wisconsin. The Union is in turn related to the International Ethical Union, which at a congress at Eisenach, Germany, in 1906, adopted as its basis this declaration: The general aim of the Union is: To assert the supreme importance of the ethical factor in all the relations of life—personal, social, national and international, apart from all theological and metaphysical considerations. The Ethical Union does not wish to be understood as promulgating any special religion, based on a particular belief, and regards ethical re-

ligion as the necessary crown of religious thought.

ETHIOPIAN RAILWAY. See **ABYSSINIA.**

ETHNOLOGY. See **ANTHROPOLOGY.**

EUCKEN, RUDOLF CHRISTOPH. A German philosophical writer, was awarded the Nobel prize for literature, in December, 1908. He was born in Aurich, East, Friesland, on January 5, 1846, studied philology, history and philosophy at Göttingen, and was professor of philosophy at Basel from 1871 to 1874, when he took the same chair in the University of Jena. His publications include, *Geschichte und Kritik der Grundgriffe der Gegenwart* (1878; 2d ed. 1892); *Die Lebensanschauungen der grossen Denker* (1890; 5th ed., 1903), and the following articles, which have been translated into English: "Liberty in Teaching in the German Universities" (1897); "Are the Germans Still a Nation of Thinkers?" (1898); "Progress of Philosophy in the Nineteenth Century" (1899); "The Finnish Question" (1899); "The Philosophy of Friedrich Froebel" (1900); and "The Present Status of Religion in Germany" (1901).

EVANGELICAL ALLIANCE FOR THE UNITED STATES. A religious organization, founded in 1867, whose object is "to manifest and strengthen Christian unity, to defend and promote religious liberty, and to encourage co-operation in Christian work, without interfering with the internal affairs of the denominations." By united remonstrances the alliances have defended and promoted religious liberty in countries where religious persecution was severe and persistent. They have also promoted the observance of an annual week of prayer in all Christian lands, and in all mission fields, during the week beginning with the first Sunday of the year. As its name and object imply, the Alliance is undenominational and all the evangelical bodies are represented in its Board of Directors. Fortunately, the necessity of opposing religious persecution is increasingly infrequent; and the manifestation of co-operating Christian unity is now attained in manifold ways and by manifold agencies. Yet the Evangelical Alliance stands ever ready to act, if its action can be of real service. The President is Dr. Leander T. Chamberlain.

EVANGELICAL ASSOCIATION. A religious denomination represented for the most part in the United States and Canada, and in Germany and Switzerland, founded in 1800 by Jacob Albright. Its origin was among the Germans in Pennsylvania. The church policy of the Association is essentially Methodist. The membership in 1908 was 131,437, with 1861 churches, and 430 local and 1173 itinerant preachers. A Biblical Institute and a College are maintained by the church at Napier, Illinois, and a publishing house at Cleveland, Ohio. An important organization connected with it is the Young People's Alliance, which has a membership of over 40,000. Domestic missions receive attention and foreign missions are carried on in Japan. The Association publishes several periodicals, the most important of which is the *Evangelical Messenger*, published at Cleveland, Ohio. It has other publications in English and German.

EVANS, SIR JOHN. A distinguished English antiquary, died on May 31, 1907. He was born at Britwell Court, near Berkhamsted, on

November 17, 1823, and became identified with a large paper manufacturing concern in Hertfordshire. He devoted much time to study of the classics, in which he became exceedingly well versed; and, especially, to antiquarian research. To numismatology he gave particular attention; and he published in 1864, *Coins of Ancient Britain* (with a supplement in 1890). He also studied geology, and published in *Archæologia*, in 1860 and 1862, two very valuable papers on "Flint Instruments in Drift." Other valuable contributions to archæology were *The Ancient Stone Implements, Weapons and Ornaments of Great Britain* (1872; 2d ed., 1897), and *The Ancient Bronze Implements, Weapons and Ornaments of Great Britain and Ireland* (1881). He was president of the Geological Society in 1874-76, treasurer of the Royal Society in 1878-98, president of the Society of Antiquaries in 1885-92, president of the Anthropological Institute in 1877-79, and president of the British Association in 1897-98.

EVANS, ROBLEY DUNGLISON. An American rear-admiral, retired from active service on August 18, 1908. He was born in Floyd County, Va., on August 18, 1846, and graduated at the United States Naval Academy in 1863. He was promoted to the rank of lieutenant-commander in 1868, commander in 1878, captain in 1893, and rear-admiral on February 11, 1901. In the Civil War he took part in both attacks on Fort Fisher (January 15, 1865), and was severely wounded during the land engagements. He commanded the *Yorktown*, at Valparaiso, Chile, in 1891, during the strained relations between that country and the United States, and the battleship *Iowa* in the Spanish American War. Rear-Admiral Evans subsequently was in command of the North Atlantic and other squadrons for several years, and in 1908, though in bad health, took the Atlantic fleet from Hampton Roads around South America to San Francisco. Here he was relieved of the command of the fleet on May 8, being succeeded by Rear-Admiral Charles S. Sperry, and was assigned to duty on the General Board.

EVOLUTION. See **BIOLOGY.**

EWALD, CARL. A Danish novelist and poet (of German birth), died in March, 1908. He was born in Schleswig, on October 15, 1856, his father being a farmer who had written some novels. After the war of 1864, the family removed to Copenhagen, and Carl was educated at the university there. Upon leaving the university he became a forester for a time, and then taught school. From 1887 he made his home in Copenhagen, where he devoted himself entirely to literary work. He published at first school books, and then translated short satirical sketches and novels for newspapers. In his novel, *The Old Room*, and its sequel, or companion, *Cordt's Son*, the first considers the changes in the character of a man who deserted a conventional life for one of freedom from restraints; the other, the psychology of his son, who regarded the social conventions. Both are vivid, if somewhat morbid, studies, containing much profound moral analysis, and the style of each is marked by skilful technique, and beauty of language. *Singletons Tidenårsrejse* (1894), and *Glaede over Danmark* (1895), are brilliant and bitter satires on Danish life, especially in literary circles. *Sulamiths Have* (1898) is a series of comic stories after the manner of Boccaccio. In his seven *Stories for*

children (1882 to 1900) and his *Four Princes* (1895) he makes use of natural phenomena in an original and amusing manner, sometimes by means of allegories, and often with a didactic purpose. Especially fantastic books for children are *Der Kinderkruezzug* (1896; German translation, 1899), and *Crumlin* (1900), while *Mein Kleiner Junge* (1899) develops an ideal theory of juvenile education. *The Old Room* and *Cordt's Son* have been well rendered into English by Alexander T. de Mattos (1908), and the translation of the remainder of this author's works into that language was under way.

EXPERIMENT STATIONS, AGRICULTURAL. See AGRICULTURAL EXPERIMENT STATIONS.

EXPLORATION. The larger events of pioneer exploration in 1908 related to Central Asia and Northeast Greenland (see POLAR RESEARCH). The most important work in Asia was that done by Dr. Sven Hedin (q. v.) who completed his journeys in the vast regions of Western Tibet from its northern to its southern border. These regions were unknown except along the routes of a few earlier European explorers, and those of one or two Indian surveyors in Southern Tibet. The fact that gives special significance to Dr. Hedin's latest researches (1906-08) is that he crossed western Tibet twice from north to south and proved that this part of the lofty plateau, marked "unexplored" on the maps, is surmounted by range after range of mountains extending east and west so that the whole surface consists of roughly parallel lines of elevations with intervening valleys in which are many lakes, most of them salt. He has thus made clear all the larger topographical aspects of western Tibet. His predecessors were not able to do this because they mainly followed the valleys from west to east and were unable to say that what they saw of the relief forms of the land was typical, as it is in fact, of the entire western plateau.

During his north-south journeys in 1906 and 1908 Dr. Hedin crossed the southernmost and greatest of these ranges. He conceived the idea that this very high and complicated mountain system was the continuation of the Nienchen-tang-la range south of Tengri Nor, whose highest summit had been fixed by Ryder at 29,900 feet. In his east-west journey of 1907, Dr. Hedin gave special attention to this mighty range and filled gaps in our earlier information which prove that the range extends clear across Tibet and far to the west of it. These mountains have been heralded as an original discovery by Dr. Hedin which is not quite accurate. Some of the peaks were triangulated in 1904 and the range is referred to in the writings of Burrard, Hayden, Hodgson, Littledale and Montgomerie. But Hedin has proved the continuity of the range by studying it along a stretch of 100 miles where no other explorer had been within sight of it and he has crossed it ten times. He proposes to call this greatest of the Tibetan mountain systems the Trans-Himalaya range and the name will probably be adopted. It is a magnificent region of lofty snow peaks, surpassing, in Dr. Hedin's opinion, every other range in Asia with the exception of the culminating range of the Himalayan system.

The great geographical results of Dr. Hedin's latest explorations are: (1) The revelation of the main topographic features of the whole of western Tibet. (2) The discovery of a part of

the Trans-Himalayan range and the careful exploration of it. (3) The complete exploration of the large white space on the maps of southern Tibet north of the Brahmaputra river from Shigatse in the east to Gartok in the west. (4) His discovery of the Tibetan provinces of Bongba and Chohcu and his proof that the province of Dokthol, on our maps, does not exist. (5) The discovery and exploration of the main branch of the Indus. As he also visited the actual source of the Brahmaputra his map of it is likely to be more accurate in detail than that of Rawlings and Ryder. He was also able to strengthen the theory that the Sutlej has its source through an underground connection with Tso Lanak. Throughout his three years' work he traveled in Tibet in spite of the absolute prohibition of the Indian and Tibetan governments, disguised much of the time as a native, and playing the rôle, when he met strangers, of the servant of his head man. Returning to Europe in January, 1909, he brought with him innumerable observations and maps which will enable him to draw a map of the whole of Tibet on a scale of 16 miles to an inch. He intends to publish, as soon as possible a popular account of his travels but some years will elapse before his scientific report and results will be ready for publication.

Very notable, also, is Dr. M. A. Stein's second series of explorations in Central Asia which he began in 1906 and ended late in 1908. It will be remembered that on his first expedition he recovered many manuscripts and other testimony from the ruins he unearthed in the desert sands of Eastern Turkestan proving that the culture of India and even the influence of the Roman Empire had reached that remote region in the early centuries of the Christian era. His last two years' work has covered large areas from southwestern Chinese Turkestan to the extreme northwestern corner of China proper, including both archaeological and geographical researches. He has discovered two hitherto unknown extensions of the Chinese Wall among the mountains at its western end, one to keep out incursions from the north, and the other to close the great route to Central Asia at a later period when China resumed her traditional attitude of exclusion. With the aid of one of the best surveyors of the Indian government, he has mapped 17,000 square miles of mountainous land in the Chinese province of Kansu and along the northern and southern confines of Eastern Turkestan. He has crossed the great Takla-Makan desert, has found many more ruins of towns and Buddhist shrines, and fifty camels were required to transport his collections of sculptures, paintings, manuscripts and other antiques to the foot of the Karakoram for transportation to India. He followed Marco Polo's route for hundreds of miles and found that this famous explorer's description of it was accurate. He traced and mapped the Khotan river to its source among the upper snows of the Kwenlun Mountains. The only accident occurred on the last day of this two years' work, when Dr. Stein's feet were severely frostbitten. He was carried on a litter to Leh, the outpost of civilization in Cashmere.

Dr. Merzbacher, the Austrian geologist, resumed his explorations in the Tian Shan Mountains, already the topic of one of his books. Capt. d'Ollone has found wholly unexpected conditions near the sources of the Hoang-ho, in eastern Tibet, where the land is a plain 13,000

feet high, covered with grass and everywhere passable by horses, the inhabitants being neither Tibetan nor Chinese but approaching the Aryan type. Dr. and Mrs. Workman continued their splendid mountaineering activities among the Hunza, Nagar and Hispar glaciers in the Himalayas. Dr. Longstaff has been engaged in scientific researches in the northwest Himalayas and Captain Kozloff of Russia devoted the year to the exploration of the Mongolian deserts and of the Koko-nor basin and is still in the field.

Africa is still flooded with explorers but pioneer work has been practically completed and research is everywhere assuming a specialized character. The greatest achievements are rewarding the French in the Sahara. The government is establishing military posts in many parts of its Saharan domain and with every expedition for military or other purposes are men competent to enrich scientific geography. The result is a large output of literary and map material which is throwing a flood of light upon the present and past condition of the Sahara and its inhabitants. It is impossible here even to mention the names of the men engaged in this labor, but Arnaud, Cortier, Lemoine, Niéger, Vélain, Gautier and Martin are very prominent among them. It has been found that, in more humid times, a wide zone in the southern Sahara supported a large agricultural population; that the ground waters flow far south of the northern edge of the desert and new oases may be created by artesian irrigation; and that a considerable grazing industry exists among the Tuaregs in the valleys among the Ahaggar Mountains in the heart of the desert. A regular mail service was established in 1908 among many of the military posts and the telegraph, now in operation about one third of the way across the desert, will be extended to the Niger river.

The most extensive African work of the year was carried on by the German party led by the Duke of Mecklenburg which, entering German East Africa in 1907, emerged late in 1908 at the mouth of the Congo after many months devoted to map surveys and geological, zoological, ethnographical and other researches. The volcanic region north of Lake Kivu received especial attention and the party reports that vulcanism is dying out there, progressively from east to west. One of the strangest tragedies of African exploration befell this party among these mountains where, a few degrees south of the equator, twenty of their native porters perished in a violent snowstorm in the crater of an extinct volcano. The equatorial forest was crossed, large collections were made and the labors of the various experts promise a rich harvest of results. One of the best sources of precise geographical data in Africa is still the work of the boundary commissions which, for several years, have been delimiting the colonial frontiers. Many other agencies are also helping towards a more exact knowledge of African geography as, for example, the railroad surveys that have recently determined scientifically the elevation of a large number of points between the Congo and the Nile rivers.

The largest geographical service in the western world is now performed by the Surveys of the United States and Canada which are rapidly pushing the scientific mapping of their vast areas. The production of similar topographic maps is also in progress in Argentina and Chile and the Survey Department of the State of São

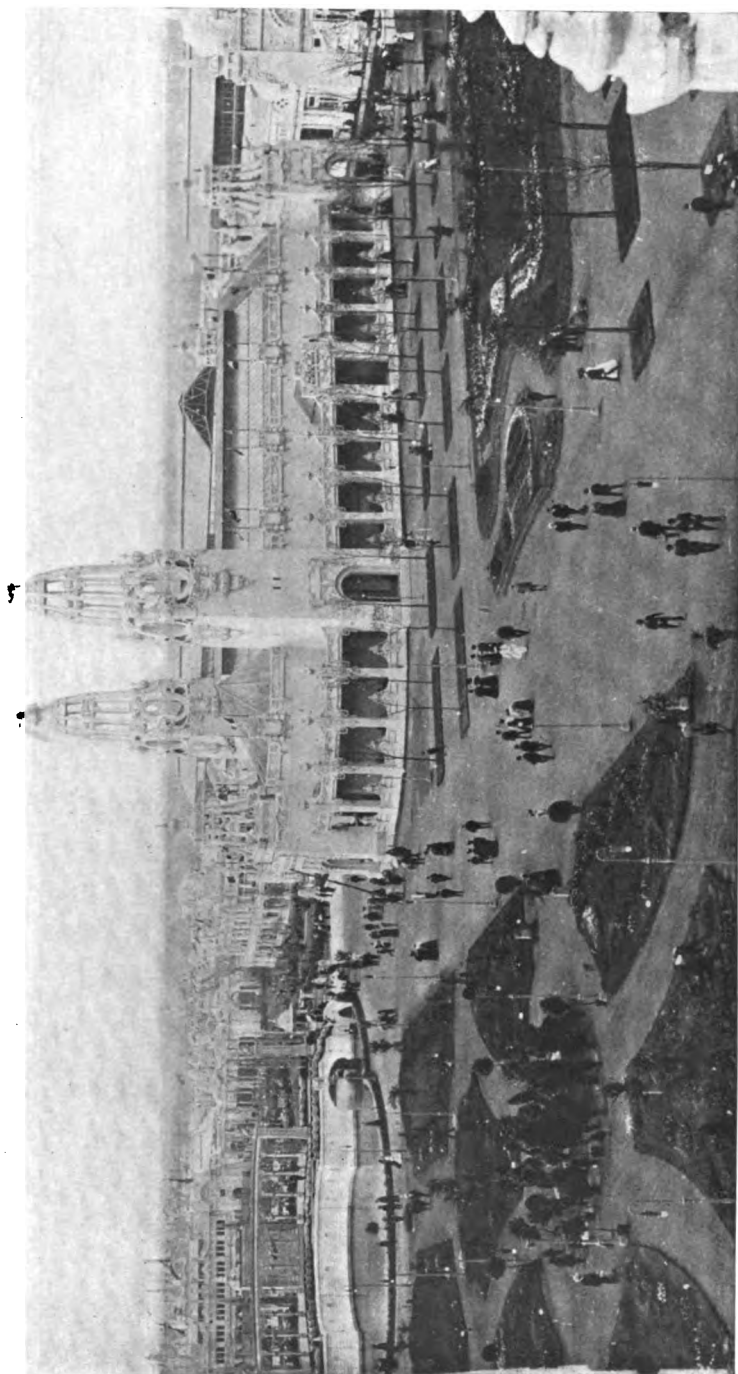
Paulo, Brazil, has been producing map sheets of the first quality. Such maps will be of the greatest assistance in studying the geography of the areas they cover and in the improvement of atlas maps. As an example of the wide utility of such surveys it may be mentioned that the admirable map sheets which Major Fawcett is producing for the government of Bolivia while carrying out the delimitation of the frontiers of that country, are to be used in the preparation of a new map of a part of South America which the Royal Geographical Society of London is about to produce.

There is not much left to explore in Australia, but every year the governments of the various states, all of which have excellent Survey Departments, are adding to exact knowledge of that continent by the detailed maps they are publishing; and Mr. Canning, by his recent journey from south to north across western Australia showed that there is still room for the pioneer explorer. He has found a route along which, he believes, sufficient water can be obtained to make it serve as a cattle drive.

Pioneer research was nowhere more active in 1908 than in New Guinea, the second largest island in the world. The Dutch are rapidly pushing the exploration of their western part of the island and in 1908 they found that a considerable number of the highest mountains in the Charles Louis range are perpetually snow-crowned. Their work, in combination with the explorations in British New Guinea, points to the probability that the Charles Louis range joins the British mountains, giving New Guinea a backbone of mountains extending through the island from its eastern to its western extremity. The recent travels of five or six British explorers have shown the important width of the British New Guinea mountains both north and south of the main Owen Stanley range. The publication of their map results on one sheet, in September, was the best recent contribution to our knowledge of the island.

EXPOSITIONS. No great international exposition was held during the year 1908, but in London, England; in Rio de Janeiro, Brazil; and in Glasgow, Scotland; important industrial exhibitions were held that deserve mention.

THE FRANCO-BRITISH EXHIBITION, held in London from May 11 to November 8, was the greatest of these. On a site in the suburb of Shepherd's Bush, covering 140 acres, there were 125 principal buildings and 400 minor structures. Twenty-two palaces were erected, seven of which were devoted to fine arts, decorative art, applied art, music, women's work, science, social economy, hygiene, chemical industries, machinery and botanical products. It was estimated that \$15,000,000 were spent on labor and materials before the opening, and that the goods exhibited were valued at \$60,000,000. All the buildings were absolutely fireproof. The exhibition was formally opened by the Prince and Princess of Wales and on May 26 it was visited by President Fallières of France. The average daily number of visitors was 80,000; the total attendance being in the neighborhood of 11,760,000. Nearly \$2,500,000 in shillings was taken at the entrances. An important feature of the Exhibition was the Olympic games (q. v.) which were held during the fortnight beginning on July 13. In the "Irish Village of Ballymac-linton" was an exact copy of the McKinley cottage in which it was claimed that the ancestor of President McKinley was born in Bally-



FRANCO-BRITISH EXPOSITION AT EARL'S COURT
GENERAL VIEW OF THE GROUNDS

money. The exhibition gained for itself the name of the "White City."

BRAZILIAN NATIONAL EXPOSITION. This was held in Rio Janeiro to celebrate the one hundredth anniversary of the opening of the ports of Brazil to international commerce. It was opened on August 11 and continued for four months. There were large palaces devoted to the greater industries and each state in the Republic erected a pavilion in which its natural and manufactured products were exhibited. The exhibition was regarded as a success but the attendance, owing to an epidemic of smallpox, was small and never exceeded 40,000 a day.

SCOTTISH NATIONAL EXHIBITION. This exposition held in Glasgow was a success and the aggregate attendance exceeded those of the exhibition in 1886 and in 1900. It achieved the record single-day attendance of 65,140, which had been previously held by Edinburgh with an attendance of 62,981 in 1886.

ALASKA-YUKON-PACIFIC EXPOSITION. During 1908 preparations were being made for this exposition to be held in Seattle, Washington, from June 1 to Oct. 15, 1909, for the purposes of exploiting the resources and potentialities of the Alaska and Yukon territories in the United States and the Dominion of Canada; as well as to foster the trade of the Pacific Ocean and the countries bordering on it; and to demonstrate the progress of western America. A tract of land covering about 255 acres on the campus of the University of Washington, fronting on Lakes Union and Washington, was chosen as a site. Eleven large exhibition palaces (of which those devoted to manufactures, liberal arts, and education, agriculture, horticulture, and irrigation, machinery, fine arts, fisheries, and mining were completed in 1908) were provided for, and 23 States announced their intention of erecting buildings. A system of landscape gardening with a unique floral display was planned under the direction of John C. Olmsted of Boston. The exhibition was located within 20 minutes ride by electric cars from the centre of the city and four double track lines extended to the grounds. The funds for this exposition began with a subscription of \$650,000 by the citizens of Seattle, which was increased to \$2,200,000 by an appropriation of \$1,000,000 from the State of Washington and of smaller amounts from various counties and municipalities. Congress appropriated \$1,175,000 for defraying the expenses of participation by the government and its non-contiguous territories in the Pacific. It was estimated that the preliminary cost of the exhibition would be \$10,000,000. In July President Roosevelt appointed as the Government Board of Managers: Assistant Secretary of the Interior J. E. Wilson, chairman; W. de C. Ravenel, of the National Museum, and W. M. Geddes, of the Treasury Department, secretary and disbursing officer.

JAPANESE WORLD'S FAIR. The great exposition which it was proposed to hold in Tokio, Japan, in 1912 was, in consequence of the financial condition of Japan, ordered postponed by the Imperial government to 1917. Congress in May passed a bill appropriating \$1,500,000 for the expenses of representation and participation by the United States in that event. It further authorized the appointment of three commissioners-general. President Roosevelt appointed Francis B. Loomis of Ohio, Frederick J. V. Skiff of Illinois, and Francis D. Millet of New York, as commissioners-general, to act under

the direction of the Secretary of State. These commissioners visited Japan during the year in order to ascertain the general plan and scope of the exposition, the character, size and cost of the buildings to be erected by the United States and the extent and characters of an exhibit that best would serve the interests of the United States and its citizens, and "best adapted to illustrate the growth and development of the country and the character of our people."

OTHER EXPOSITIONS. An exposition was announced for Quito, Ecuador, in 1909 in commemoration of the first centennial anniversary of the political emancipation of that country, for which a board to have general supervision of the exhibits of the United States was appointed by President Roosevelt. An international exposition of photography at Dresden, Germany, in 1909 was in active preparation. It was announced that in 1910 there would be an International Shooting and Field Sports Exhibition held in Vienna, Austria, for which an appropriation of \$250,000 was recommended to Congress by President Roosevelt for a government exhibit of game birds and wild animals. Also announcement was made of an exposition to be held in Turin, Italy, in 1911.

FAILURES. See **FINANCIAL REVIEW**, *Failures*.

FALK, MAX. A Hungarian journalist and politician, died on Sept. 10, 1908. He was born at Pest on Oct. 17, 1828, and was educated in Pest and at the polytechnic school at Vienna. After a brief term as editor of the *Wandrer*, in Vienna, he was appointed lecturer on Hungarian History and Literature to the Empress Elizabeth (1866). In 1869 he was elected a member of the Hungarian Parliament. His writings—mostly short articles—appeared in the *Österreichische Revue* and in *Pesther Lloyd*. He was editor of the latter for several years, retiring in 1906.

FALKLAND ISLANDS. A British crown colony in the South Atlantic, consisting of the islands of East Falkland, 3000 square miles; West Falkland, 2300 square miles; South Georgia, uninhabited, 1000 square miles; and about 100 uninhabited small islands, 1200 square miles; total area, 7500 square miles. Population, 1901, 2043; 1907 (estimated), 2266. Port Stanley, the chief town, on East Falkland, has 916 inhabitants. The principal occupations are sheep raising and the repairing of ships coming to Port Stanley in their voyage around Cape Horn. The pasturage covers 2,325,000 acres. In 1906 there were on the islands 702,696 sheep, yielding 4,324,215 pounds of wool. Other products of the sheep ranches are tallow, pelts, hides, etc. Some whaling is also carried on. The large peat deposits are not worked. In 1907 the imports amounted to £73,619 (£68,091 from Great Britain), and the exports, £246,436 (£195,571 to Great Britain). The principal export is wool, valued at £166,859 in 1907. The revenue is derived mainly from customs and rents of crown lands. Revenue and expenditure in 1907 were £17,430 and £18,054 respectively. The Governor in 1908 was H. E. W. Lamond Allardyce.

FARM ANIMALS. See **STOCK RAISING**.

FARM ANIMALS, DISEASES OF. See **VETERINARY MEDICINE**.

FARM EDUCATION. See AGRICULTURAL EDUCATION.

FARREN, WILLIAM. An English actor, died on Sept. 25, 1908. He was born in England in 1825, and made his first appearance at the Strand Theatre, London, in 1850. During the period 1853-1867 he was at the Haymarket Theatre, where he played in revivals of old comedies and in numerous sentimental dramas; of the latter, *The Secret Agent* was one of the most popular. He played at the Vaudeville Theatre from 1872 to 1878. While here he appeared in *Our Boys* during the whole of its extraordinary run of 1100 nights. Leaving the Vaudeville, he went to the Criterion, where he appeared with Sir Charles Wyndham in *David Garrick*. About 1888 he retired, and settled in Italy for the remainder of his life. Farren's best work was done in comedy rôles; among his most popular impersonations were Captain Absolute, Charles Surface, Sir Peter Teazle, and Adam (in *As You Like It*). His father and grandfather were both distinguished actors, and his son is a well-known comedian.

FAUSBÖLL, MICHAEL VIGGO. A Danish Oriental scholar, died on June 3, 1908. He was born at Hove, Denmark, in 1821, was assistant in the library at Copenhagen in 1861; and became professor of Indo-Oriental languages at the University of Copenhagen in 1878. His fame rests chiefly on his translation of the *Jâtaka*, a collection of folk-tales written in Pâli, an ancient language of India. He published the work in sections, of which the first, *Five Jâtakas* (with Eng. trans.), appeared in 1861. Then followed *Two Jâtakas*, (1870); *Dasaratha Jâtaka* (1871); and *Ten Jâtakas* (1872). In 1877 he published the first volume of the complete collection; the sixth and last volume appeared in 1896.

FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA. An organization formed as the result of a meeting of 500 officially appointed delegates of 30 religious denominations, held in New York City, Nov., 1905. These delegates recommended a plan of federation which has since been adopted by the official action of the National Conference of Churches, representing an aggregate membership of about 15,000,000. The object of the Federal Council is, first, to express the fellowship and catholic unity of the Christian Church; second, to bring the Christian bodies of America in united service; third, to encourage devotional fellowship and mutual counsel concerning the spiritual life and religious activity of the churches; fourth, to secure a larger combined influence for the churches of Christ in all matters affecting the moral and social conditions of the people so as to promote the application of the law of Christ in every relation of human life; fifth, to assist in the organization of local branches of the Council and to promote its aims in their committees. The Federal Council has no authority over the constituent bodies adhering to it, but its province is limited to the expression of its counsel and the recommending of a course of action in matters of common interest to churches, local councils and individual Christians.

The following Christian bodies are represented in the Federal Council: Baptist Churches (North), Free Baptist Churches, Negro Baptist Churches, Christian Connection,

Congregational Churches, Disciples of Christ, Evangelical Association, Evangelical Synod, Friends, Evangelical Lutheran Church, General Synod, Methodist Episcopal Church, Methodist Episcopal Church (South), Primitive Methodist Church, Colored Methodist Episcopal Church of America, Methodist Protestant Church, African Methodist Episcopal Church, African Methodist Episcopal Zion Church, Mennonite Church, Moravian Church, Presbyterian Church in the U. S. A., Cumberland Presbyterian Church, Welsh Presbyterian Church, Reformed Presbyterian Church, United Presbyterian Church, Protestant Episcopal Church, Reformed Church in America, Reformed Church in the U. S. A., Reformed Episcopal Church, Seventh Day Baptist Churches, United Brethren in Christ, United Evangelical Church.

The first meeting of the Federal Council was held in Philadelphia, Dec. 2-8, and it was one of the most notable gatherings assembled in the religious history of the country. Delegates were present representing officially 18,000,000 of people, and indirectly some millions more. Over thirty Protestant denominations were represented. Bishop E. R. Hendrix of the Methodist Episcopal Church, South, was chosen president of the Council. Notable addresses were made on the subject of missions by Dr. Barton of the Congregational Board; Dr. Lloyd of the Episcopal Board, and Mr. Robert Speer of the Presbyterian Board of Foreign Missions. Probably the most important action of the Council was the adoption of resolutions concerning the relation of the Church to modern industry, and in fact to the whole social order of the day. These resolutions consist of two general divisions with a supplementary conclusion. In passing these resolutions the Council affirmed the faith of the Church in the teachings and authority of Jesus Christ as a solution of the problems of modern industry. It recognized the complexity of modern industrial conditions and counseled tolerance. It asserted that the mere organization of capital or labor does not determine right and wrong and that the Church must emphasize the Gospel as a test of both individual and collective conduct. It commended those employers who have shown in the conduct of their business a fraternal spirit, and a disposition to deal justly and humanely with their employees as to wages, profit-sharing, welfare work, etc., and of such labor organizations as have, under wise leadership, for so many years promoted the welfare not only of men of their own craft, but of the entire body of workingmen.

The resolutions declared for certain specific measures. Among these are the principles of conciliation and arbitration in industrial discussions, the protection of the worker from dangerous machinery, occupational diseases, injuries, and mortality, the abolition of child labor, the suppression of the sweating system, the gradual and reasonable reduction of the hours of labor to the lowest practicable point, the release from employment one day in seven, a living wage as a minimum in every industry, and the highest wage that each industry can afford, the most equitable division of the products of industry that can ultimately be devised, for suitable provision for the old age of the workers and those incapacitated by injury.

On Dec. 6 there was held a great meeting at which some thirty trade unions were officially represented by hundreds of workmen, and over which presided Dennis Hayes, President of the Glass Bottle Blowers of the United States, a Roman Catholic.

The officers of the Executive Committee of the Council are, Chairman, William H. Roberts, D. D.; Secretary, E. B. Sanford, D.D.

FEDERATED MALAY STATES. A British protectorate on the Malay Peninsula, comprising the native States of Perak, Selangor, and Negri Sembilan, on the west coast, and Pahang, on the east coast. Their approximate areas, and estimated populations at the end of 1906 are shown in the following:

	Area, sq. miles	Population, 1906
Perak	6,580	418,000
Selangor	3,200	283,619
Negri Sembilan...	2,600	121,763
Pahang	14,000	100,000
Total	26,380	918,400

In 1901 the population numbered 678,595 (189,508 females), including 312,486 Malays, 299,739 Chinese, 58,211 East Indians, 1422 Europeans, and 1522 Eurasians. The largest town is Kuala Lumpur, in Selangor, 35,000 inhabitants. In 1906 there were 285 English and vernacular schools, with 16,946 pupils. An Institute of Medical Research has been established at Kuala Lumpur.

AGRICULTURE. The areas under cultivation, exclusive of land under paddy, in the several States at the end of 1907 were as follows: Perak, 114,969 acres; Selangor, 92,072; Negri Sembilan, 38,299; Pahang, 16,423; total, 261,763 acres. Of this total, 112,560 acres were devoted to cocoanut cultivation, 126,235 to rubber, 10,833 to coffee, and 12,135 to other crops. The area under paddy was estimated at 107,143 acres. The land under rubber in the several States was as follows, in acres: Perak, 46,167; Selangor, 61,552; Negri Sembilan, 17,656; Pahang, 860. The number of rubber estates was 287; the number of trees, nearly 20,000,000; additions to the area in 1907 aggregated 40,473 acres. The total quantity of cultivated rubber exported in 1907 was 1,984,285 pounds (in 1906: 1,028,792 pounds), to which Perak contributed 1,198,751 pounds; Selangor, 255,530; Negri Sembilan, 530,004; Pahang, none. To the area under cocoanuts, 7500 acres were added during the year, of which only 650 acres were planted by Europeans. The total value of the cocoanut plantations was estimated at 22,000,000 dollars. The export of copra in 1907 was 55,421 piculs (of 133 1/3 lbs. each). The total number of estate laborers in 1907 was 58,073, of whom 43,824 were Tamils, 6029 Javanese, 5348 Chinese, and 2872 Malays.

MINING. The Federated Malay States supply 60 per cent. of the world's tin production. The total output of tin in 1907 was 813,636 piculs (of 133 1/3 lbs. each), 3150 piculs less than in 1906, to which Perak contributed 431,386 piculs; Selangor, 273,900; Negri Sembilan, 75,155; Pahang, 33,195. Taking the dollar at 2s. 4d., the sterling value of the output in 1907 was estimated at £8,095,134. The fluctuation in price was exceptionally great during 1907. Local prices reached a maximum of 97.24 dollars a picul in April and remained fairly high till the

end of August, when they began to drop, reaching their lowest point, 57.75 dollars, during December. The prices in the London market varied from £199 10s. a ton in July to £119 in December. The export of tin in 1907 was 13,938 tons, and of tin ore, 34,494 tons, against 18,259 and 30,358 respectively in 1906. The export of gold in 1907 was 15,353 ounces, valued at 526,388 dollars (£61,412), of which 14,286 ounces came from Raub. The mining revenue from all sources in 1907 was 10,027,262 dollars, showing a decrease of 561,562 dollars from 1906, due to lower prices for tin and to the keeping back of part of the tin stocks for higher prices. The mining revenue collected in the several States in 1907 was as follows: Perak, 5,351,774 dollars; Selangor, 3,455,241; Negri Sembilan, 931,369; Pahang, 288,878.

FOREIGN COMMERCE. The imports and exports, excluding bullion and specie, of the several States in 1907 were as follows, in dollars of about 56 cents each:

	Exports	Imports
Perak	24,825,278	40,031,564
Selangor	22,122,897	28,489,602
Negri Sembilan	4,071,870	8,938,905
Pahang	1,522,232	3,133,105
Totals	52,542,277	80,593,196

In 1906 the imports and exports totalled 50,926,606 and 80,832,325 dollars respectively. The principal imports are rice, flour, bran, sugar, kerosene oil, and opium. The principal exports are paddy, tin, sugar, tapioca, gambier, coffee, rubber, and copra. In the first eight months of 1908 exports of tin showed heavy decreases to all countries, except Great Britain, to which the exports increased to such an extent as to overcome the decreases to other countries. As regards other products, some showed increased exports, while others showed decreases.

COMMUNICATIONS. There are over 1860 miles of roads and 1280 miles of telegraph line. The Johore (q. v.) State Railway was expected to be completed by 1908, thus establishing railway communication between Prai, on the mainland opposite Penang, and Singapore, the only interruption in this distance of 493 miles being the Johore Strait, about three-quarters of a mile in width, to be crossed by a wagon-ferry. Progress was made in 1908 with the light railway from Ipoh to Tronoh, some 15 miles, in the most important tin-mining district of Perak. A beginning was also made in railway construction on the east side of the Peninsula, from Gemas, on the Johore border, to Kuala Semantan, the point in Pahang where the Semantan River falls into the Pahang River, a distance of 70 miles.

GOVERNMENT AND FINANCE. The highest authorities are the High Commissioner, who is the Governor of the Straits Settlements (q. v.), and the Resident-General at Kuala Lumpur—in 1908 Sir Wm. Taylor. There is also a subordinate resident in each State. The highest authority in each State is a Council composed of the native sultan, the resident and his secretary, and some of the leading Malay chiefs and Chinese merchants. There is a military force of 900 Sikhs and Pathans, and a police force of 2800 men, partly Malay and partly Indian. The revenue and expenditure in 1907 were 28,793,744

(about one-half from customs) and 20,225,992 dollars respectively.

FEEDING STUFF. See STOCK RAISING.

FENCING. The fifteenth annual intercollegiate tournament was won by West Point, the final point score being West Point, 22; Annapolis, 21; Cornell, 15; Columbia, 15; Yale, 7; Massachusetts Institute of Technology, 1. West Point defeated Pennsylvania 7 to 2, Columbia 6 to 3, and Harvard 9 to 0; Pennsylvania defeated Yale 7 to 6 and was defeated by Columbia 4 to 5; Annapolis defeated Columbia 5 to 4. In a triangular meet Columbia defeated Pennsylvania 8 to 1; Yale defeated Columbia 5 to 4 and Pennsylvania 9 to 0. In another triangular meet Annapolis scored 16 points, Cornell 7, and Pennsylvania 4. At the national championships, the duelling swords were won by P. Benzenberg of the New York Turn-Verein; the foils, by W. L. Bowman of the N. Y. A. C.; the sabres, by G. W. Postgate of the New York Turn-Verein. The Saltus cup and medals were won by the Fencers' Club of New York, the team being made up of C. Tatham, G. W. Breed, and W. S. O'Connor.

FENOLLOSA, ERNEST FRANCISCO. An American educator and writer, died on Sept. 25, 1908. He was born at Salem, Mass., on Feb. 18, 1853, and in 1874 graduated at Harvard, where he won the highest honors in philosophy. He was in Japan from 1878 to 1890, during which time he was connected with Tokio University as professor of philosophy and political economy, and of philosophy and logic (1880-86), and with the Tokio Fine Arts Academy as professor of aesthetics and manager. He was also for a time imperial fine arts commissioner of Japan and manager of the Imperial Museum at Tokio. Upon his return to the United States in 1890 he accepted the position of curator of the Oriental art department in the Museum of Fine Arts at Boston, where he remained for six years. In 1897 he returned to Japan and for three years held the chair of English literature at the Imperial Normal School at Tokio. He wrote two volumes of poems, *East and West*; *The Discovery of America and Other Poems* (1893); and *An Outline History of the Ukiyo-ye* (1902). He was also well known as a lecturer on Oriental topics. In 1886 the Mikado decorated Professor Fenollosa with the fourth class "Rising Sun" and in 1890 with the third class "Rising Sun" and the third class "Sacred Mirror."

FERDINAND I. Tsar of the Bulgarians, proclaimed on Oct. 5, 1908. He was born in Nerina on Feb. 26, 1861, the youngest son of Prince Augustus of Saxe-Coburg-Gotha. After the abdication of Prince Alexander of Bulgaria in 1886, Ferdinand was elected Prince by the National Assembly on July 7, 1887. His reign has been marked by the rapid economic development of the country, due largely during its first ten years to the ability of his minister, Stambuloff. Taking advantage of the Turkish revolution in 1908 and, it is supposed, encouraged by Austria, Bulgaria repudiated its nominal allegiance to the Ottoman Empire and proclaimed its independence, Ferdinand taking the title of Tsar. His heir is his son, Boris, born in 1894. See BULGARIA.

FERDINAND IV. Archduke of Austria, and Grand Duke of Tuscany, died on Jan. 17, 1908. He was born in Florence on June 10,

1835, a son of Leopold II, and of Maria Antonia, daughter of Francis I, King of the two Sicilies. Upon the abdication of his father (July 21, 1859) Ferdinand succeeded his grandfather, Ferdinand III. This succession was recognized by European courts, but on Aug. 16, the city of Florence and the Tuscan municipalities voted to dethrone the Hapsburg-Lorraine dynasty, and to incorporate Tuscany in the Kingdom of Sardinia, and this incorporation was made effective by decree of Victor Emmanuel, in March, 1860. Ferdinand lacked the power to make good his protest against this decree, and was constrained, therefore, to accept the Emperor Francis Joseph's offer of the Castle of Salzburg, where he lived most of his life. During his last years he was much humiliated and embittered by the extravagant conduct of his son, who was known as "Leopold Wölfling," and the escapades of his daughter, the Countess Montignoso, divorced wife of the King of Saxony, who, in 1907, married the musician, Toselli.

FERGUSON, ARTHUR WALSH. Executive secretary of the United States Philippine Commission, died at Manila, P. I., on Jan. 29, 1908. He was born in Benicia, Solano County, Cal., on Dec. 4, 1859, and lived during his youth in Mexico, where he laid the foundation of his fine knowledge of the Spanish language. He graduated at St. Augustine College (Benicia) in 1877, and at the Law School of Georgetown University in 1885. In 1879-82 he was owner and editor of the Benicia *New Era*, a weekly newspaper. He was appointed interpreter to the International American Conference, which met at Washington in 1889, and thereafter was secretary of the International American Monetary Commission (1891); official interpreter to the Intercontinental Railway Commission (1891); secretary to the United States Chilean Claims Commission (1893); secretary to the United States and Venezuelan Claims Commission (1894); chief translator to the Bureau of American Republics (1897-1900); official interpreter to the American and Spanish Peace Commission, at Paris (1898); Spanish secretary to the United States Philippine Commission (1900); chief secretary of that body (1900-1901), and from July 16, 1901, executive secretary for the Commission.

FERREIRA DO AMARAL, FRANCISCO JOAO. A Portuguese admiral and statesman, became Prime Minister of Portugal on Feb. 3, 1908, immediately after the accession of Manoel II. The assassination of King Carlos had been caused in part by the dissatisfaction of the politicians with reforms of his prime minister Franco, and Amaral immediately reversed his policy, reestablished the freedom of the press and ordered elections for the Cortes to be held on April 5, 1908. See PORTUGAL.

FERRERO, GUGLIELMO. An Italian historian, who visited the United States in 1908, delivering lectures at several universities and contributing various discussions and criticism in the press and magazines. He was born in 1871, at Portici, near Naples, the son of a Piedmontese railway engineer, and received his early education in Tuscany and Umbria. After the study of law at Pisa he received a diploma in belles-lettres at Bologna, where he studied under the great Italian poet, Carducci. He collaborated with Lombroso, whose daughter he subsequently married, in his work, *The Female Offender*, and after the publication of his doctor's thesis, which was translated immediately into French, Ferrero was in active demand as

a contributor to various periodicals and newspapers. In 1902 appeared the first volume of his history, *Greatness and Decline of Rome*, which immediately secured him recognition as a historian. Five volumes of this work had appeared up to 1908 and four more were announced. Signor Ferrero's work throws new light on Roman history, largely due to his point of view, and he has been very keen in finding analogies with modern conditions in the life of the great Republic. His work has aroused criticism as well as approval.

FERTILIZERS. The year 1908 was characterized by substantial progress in the extension of production and consumption of fertilizers, rather than by any striking discoveries relating to the fertilizer industry. The tendency to concentrate the fertilizer business in the hands of a few large corporations was evident in 1908, as in previous years. While fertilizers were used in larger amounts, it was evident that they were used with greater discrimination and intelligence than ever before. This can be traced directly to the influence of the various educational agencies, which have been so active in recent years in teaching the applications of science to agriculture. Scientific investigation was directed during the year more particularly toward perfecting our knowledge of the means by which the nitrogen of the air may be made commercially available. Notable progress was reported in perfecting methods and in establishing factories for the manufacture of basic lime nitrate by the Birkeland and Eyde process and of calcium cyanamid by the Frank and Caro process. Both of these processes utilize the free nitrogen of the air. Several new factories for the manufacture of the products were completed and others begun in Europe during the year. and an American branch of the Cyanamid Company, having headquarters in New York City, began the construction of works at Niagara Falls, Ontario. The products found their way to a limited extent into the European markets, and their fertilizing value was tested with satisfactory results with many different kinds of crops, and under a great variety of conditions. The activity in the manufacture of these products awakened renewed interest in the two principal nitrogenous fertilizers—nitrate of soda and sulphate of ammonia—with which the new materials must compete.

The total production of Chilean nitrate in 1908 was estimated at over 2,000,000 tons, indicating a marked increase over the production of 1907. More careful inquiry into methods of exploitation, and of preparing the nitrate for the market indicated that predictions of the early exhaustion of the natural supplies of nitrate were not well-founded. Müntz and Nottin, in France, have worked out methods of preparing and operating nitre beds of peat, which are capable of yielding large quantities of nitrate by rapid nitrification. Progress was also made during the year in perfecting and applying processes for securing larger supplies of ammonium compounds from peat and from the fumes escaping from coke ovens and gas furnaces. Little or no progress was recorded during the year in regard to the inoculation of seeds and soils to secure greater assimilation of the nitrogen of the air by leguminous plants.

The direct fixation of the free nitrogen of the air by certain soil microorganisms received much attention, but this matter still in the

main remained in the field of purely scientific inquiry. Incidentally, however, these investigations furnished additional evidence that the high fertilizing value of barnyard manure is due in part, at least, to the fact that this material furnishes peculiarly suitable food and favorable conditions for the activities of beneficial soil organisms.

Collateral investigation showed that the large losses of nitrogen which occur in ordinary methods of handling barnyard manure may be greatly reduced by the simple means of making the bottom layer of the manure heaps of old, fermenting manure. In view of the rapid exploitation of the known available supply of phosphates in the United States, the large foreign exports, and the wide distribution in this country of farm lands needing phosphate, the President of the United States, with wise foresight, ordered, Dec. 10, 1908, the withdrawal from public entry of certain Western phosphate lands, comprising about 7,500 acres in portions of Morgan, Rich, and Cache counties, Utah, Bear Lake, Bannock, Bingham and Fremont counties, Idaho, and Uinta county, Wyoming, and constituting, according to preliminary surveys of the U. S. Geological Survey, "the greatest known phosphate deposit in the world." According to a report of the Survey, "there were 2,265,000 tons of phosphate rock produced in the United States in 1907, and of this amount 900,000 tons, or about 40 per cent., was exported. . . . At the present rate of mining the known available supply of high-grade phosphate rock in the United States will last only fifty-four years, and if the increase in production shown during the last decade continues the supply will be exhausted in twenty-five years. It is therefore evident that the large deposits of the public-land States must be depended on to replenish the fertility of the farms of the United States, and the only available method of preventing the acquisition of these phosphate deposits by foreign companies for shipment abroad and of insuring their use on our own lands is apparently to retain the title in the government and lease the lands under provisions that will prevent exportation.

FIJI ISLANDS. A group of about 250 islands in the South Pacific Ocean, about 80 of which are inhabited, forming a British crown colony. Area, 7435 square miles. Viti Levu, the largest island, covers 4250 square miles. Population (1901), 120,124, including 2459 Europeans, 17,105 East Indians, 94,397 Fijians, 2230 Rotumans, and 1983 Polynesians and mixed; on Dec. 31, 1906, 125,085. Suva, the capital, on Viti Levu, had 1121 inhabitants in 1906. No systematic attempt has yet been made to prospect for minerals, though traces of gold have been found on the islands of Viti Levu and Vanna Levu, and it is believed that copper exists on both of these islands. The cultivation of sugar-cane, cocoanuts, and green fruits, chiefly bananas, is the staple industry. The total area under cane in 1907 was estimated at 39,404 acres, from which 584,686 tons of sugar-cane were produced. There are six sugar mills, of which four are owned by an Australian concern. The output of sugar rose from 40,000 tons in 1906-7 to 68,000 tons in 1907-8, and 80,000 tons in 1908-9. The area under cocoanuts cultivated by Europeans is estimated at 28,634 acres; of that cultivated by natives, there are no returns. The quantity of copra—the dried kernels of the coconut—exported in 1907 was 11,200 tons

valued at £182,788. The area under bananas and pineapples, exclusive of native cultivation, was 3477 acres. The natives cultivate considerable banana areas, selling the produce to European agents. A considerable improvement in the quality of fruit exported has resulted from the appointment in 1907 of an inspector of fruit for export. Experiments with rubber cultivation have proved successful. Other products are maize, rice, yams, peanuts, tobacco and tea. The imports and exports in 1907 amounted to £643,007 and £881,364 respectively. The trade is mainly with Australia and New Zealand. The administration is in the hands of a Governor, in 1908, Sir Everard F. im Thurn, who is also High Commissioner for the Western Pacific. In 1907, the revenue was £179,802; the expenditure, £156,811; the public debt, £133,915, including £55,815 to the Imperial government, bearing no interest.

FILTRATION. See WATER WORKS.

FINANCIAL REVIEW. The year 1908 was an after-panic year. It opened with business at a low ebb in both financial and industrial circles, and recession continued until March. New York City banks began with currency at a premium, and call money reaching 20 per cent., while the Clearing House banks showed a deficit of \$20,170,000 in reserves against deposits and had outstanding more than \$50,000,000 Clearing House certificates. Industry steadily slackened during the early months. The number of idle freight cars increased from 114,819, Dec. 11, 1907, to 413,338, April 29, 1908; the demand in the retail trade fell off, in spite of sharp reductions in commodity prices until June; factories were running on short time, or closed; and unemployment was on the increase. There was, however, a very rapid recovery in financial quarters. By Feb. 1, the New York banks reported surplus reserves of \$40,526,000; practically all the Clearing House certificates were retired during February; the average rate of money on call fell from 15 per cent. in the early days of January to 1½ per cent. early in February, which rate was the average for the remainder of the year. The January dividends, increased by millions of new circulation (see CURRENCY) and other millions restored to banks by returning confidence, piled up cash holdings to an unprecedented level, especially in New York City, and stimulated investment. The demand for bonds was one of the features of the year on the New York exchange, the sales establishing a new high record. Prices of stocks recovered with remarkable rapidity and new issues were large (see below). Many railroads reduced dividends, among them the Pennsylvania, the New York Central and the Atchison roads, while many others, including the Missouri Pacific, were compelled to omit dividends. No less than 24 railroads went into receiverships, including the Seaboard Air Line, and the Cincinnati, Hamilton and Dayton. Building fell off, commodity prices reached their lowest level June 1, while the bank clearings for the first six months were the smallest in four years, and failures were 58 per cent. more numerous than in 1907.

On June 27, New York banks reported \$66,000,000 surplus cash reserves, an amount surpassed only in 1894. During the second half year money continued easy, though in December, the call rate advanced occasionally to 4 per cent. The rate of six months money, which

stood at 6 per cent. in January, fell gradually to 4 per cent. in April and to 3¼ per cent. in June; it remained at or slightly above this rate during the remainder of the year. With prospects of good crops and increasing optimism and confidence, bank clearings began to increase and in September passed the 1907 level. The presidential campaign and the exposure of certain letters from John D. Archbold, of the Standard Oil Company (q. v.) led to some uneasiness in the stock market in October. It was on the 30th of the month, however, that the number of idle freight cars fell to 100,073, the year's minimum. There was a noticeable revival following the election of Wm. H. Taft. This was furthered by the splendid grain, hay and cotton crops, with high prices for all farm products. Building increased in November, bank clearings reached the year's maximum, and railway earnings were good. During December, there was a slight reaction, and signs of a growing conservatism. During the later months, the situation in the railway world was very much improved. By vigorously reducing expenses, and by foregoing all improvements, many roads brought net earnings up to the 1907 level; in some cases, both gross and net earnings in October, November and December exceeded those for the closing months of 1907. However, the number of idle freight cars increased rapidly after December 1. The consumption of goods as shown by the retail trade rose from the 35 per cent. of normal for January to 75 per cent. of normal in December. This reacted on manufacturing establishments. Blast furnaces, idle since February, in Pennsylvania, Ohio and Alabama, were blown in early in October; cotton and woolen mills started; railway shops all opened on part or full time before November. Most establishments were running at from 60 per cent. to 75 per cent. of capacity at the close of the year. This brought the total volume of industry fully up to the 1905 level.

GOLD EXPORTS began in April, and reached a total of \$73,000,000 by the close of the year; the net exportation of gold was \$45,000,000. This represented only a portion of the gold imported in November and December, 1907, and, in view of the recovery of bank reserves, the movement, though the largest net export in thirteen years, caused no disturbance. The year's statistical record shows some new maximums, and compares not unfavorably with previous years. The value of farm products was estimated by the Secretary of Agriculture at \$7,778,000,000, an amount never before attained, it being 3.8 per cent. larger than the value in 1907. Bank clearings were only 9 per cent. less than in 1907, and exceeded those of any year preceding 1905. (See CLEARING HOUSE.) Stock and bond transactions exceeded those of 1907 (see below). The country's pig-iron production was only about 15,936,000 tons, or 38 per cent. less than the record output of 1907, and smaller than any year's total since 1901. After June, the pig-iron production increased each month, the December output of 1,740,000 tons being 70 per cent. larger than that of January. Iron-ore shipments of 25,427,000 tons were 37 per cent. less than those of 1907. The output of rails was only 1,800,000 tons, or only one-half that of 1907. Copper production was abnormally low in the early months of the year, but exceeded the normal in the later months. This was due to a heavy export trade. It was due also in part to a marked revival in the brass and electrical in-

dustries in the latter half of the year. Labor troubles were not numerous, in spite of a bad labor market; strikers numbered only 230,000, as compared with 330,000 in 1907 and 650,000 in 1903. The volume of foreign trade was 15 per cent. less than the high record established in 1907, but the exports, valued at about \$1,724,000,000, surpassed those of any year preceding 1906, and the imports, valued at about \$1,104,000,000, surpassed those of any year preceding 1905. The decrease in the value of both exports and imports was due in large part to lower prices instead of smaller quantities. Traffic on the Great Lakes was 29 per cent. less in quantity than in 1907. There was also a sharp decline in the earnings of transatlantic steamships. The business of the United States Steel Corporation is generally viewed as a good trade barometer. Its net profits in 1908 were \$92,000,000, as compared with \$161,000,000 in 1907 and \$156,600,000 in 1906. The largest net earnings were made in October, the last two months of the year showing some recession in business. However, the unfilled orders on Dec. 31 were larger than at any time since Mar. 31, though less than one-half those of June 30, 1907. The total gross earnings of 229,000 miles of railway were estimated at \$2,330,250,000 for 1908, or 11 per cent. less than for 1907; and net earnings at \$763,550,000, or 14 per cent. less than for 1907. While total gross earnings were \$315,300,000 less than in 1907, total expenses also were \$226,300,000 less. As reported by *Bradstreet's*, the aggregate expenditures for building in 83 cities in the United States were \$591,191,000, or ten per cent. less than in 1907; this decrease, however, was entirely due to the enormous decline of the first months of the year, as there was a steady improvement throughout. The world's gold production in 1908 was \$438,000,000, or \$118,000,000 more than in 1907, a fact that argued well for the rapid recovery of the world's industrial condition.

STOCKS AND BONDS. The year, like preceding post-panic years was remarkable for the amount of money seeking investment. The result was a good market for securities. While 1907 and 1906 had been years of money scarcity, with the result that bond sales were difficult and great quantities of short time notes were issued at high rates of interest, the year 1908 saw the ready absorption of unprecedented quantities of bonds at the remarkably low rates of $3\frac{1}{2}$ per cent. to $4\frac{1}{2}$ per cent. The bond sales of the New York Stock Exchange aggregated \$1,084,507,500 par value, as compared with \$529,861,919 in 1907. This new maximum was approached only in 1901, 1904, and 1905. Of the total, \$1,002,730,700 were listed railroad and miscellaneous bonds, \$10,148,820 government bonds, \$64,362,500 city bonds, and \$1,775,000 state bonds. The sales of November and December were enormous, those of November being \$136,605,000 and those of December, \$165,669,000. The sales for the second half of the year were 62 per cent. of the year's total. The stock transactions on the New York exchange amounted to 196,821,875 shares, as compared to 195,445,421 shares in 1907, and to the record maximum of 284,016,894 shares in 1906. May, August, November, and December were the months of heaviest trading. The Boston exchange showed a somewhat similar record. The bond sales of the year, \$39,828,000, reached a total more than five times that of 1907, and never before ap-

proached. The stock transactions, 13,002,000 shares, were slightly less than those of 1907.

RISE IN VALUES. The effect of abundant money and confidence on the part of investors showed itself in the remarkable advances in the value of stocks. The total appreciation in the value of 95 railroad stocks, shown by comparing the stock quotations for Dec. 31, 1907, and the same date, 1908, was \$1,413,096,211; and the appreciation of 92 industrials was \$834,169,000.

A computation by *The Wall Street Journal* showed that the average price of 20 typical railroad stocks was lowest on Feb. 17, with a value of 86.04, and highest on Dec. 12, with a value of 118.18. The lowest average for these stocks in 1907 (Nov. 21) was 81.41; in 1906, 120.30; and in 1905, 114.52; and their highest average price in 1907 (Jan. 5) was 131.95; in 1906, 138.39; and in 1905, 133.54. The lowest average for twelve industrials in 1908 was 58.02 on Feb. 13, and their highest, 88.38, on Nov. 13. Their lowest in 1907 (Nov. 15) was 53; in 1906, 85.18; and in 1905, 71.37; and their highest in 1907 (Jan. 7), 96.37; in 1906, 103; and in 1905, 96.56. Taking all railroads, the average of closing prices at the end of 1908 was 120.05, as against 89.50 at the end of 1907; and for industrials, 86.15 as against 59.47 for 1907.

ISSUES OF SECURITIES. The excellent securities market resulted in very large issues of both stocks and bonds by corporations. The total amount of issues authorized during the year was, according to *The Journal of Commerce and Commercial Bulletin*, \$2,189,958,000, and the amount actually issued was \$1,419,799,000. This exceeded the amount issued in 1908 by \$26,000,000. The total issues by railroads aggregated \$990,715,000, including \$595,113,000 bonds, \$274,705,000 notes, and \$120,896,000 stocks. The issues by industrial companies amounted to \$429,083,000, including \$197,850,000 bonds, \$26,850,000 notes, and \$204,383,000 stocks. The bond issues aggregated \$792,963,000, the notes \$335,697,000, and the stocks, \$325,279,900. Not all of these vast sums represent new additions to capital, for it was estimated that fully one-third of the total was of bonds issued for the purpose of refunding older ones maturing during the year or soon thereafter. The most notable bond issue of the year was the sale of \$40,000,000 of 4 per cent. consolidated mortgage bonds by the Pennsylvania Railroad. They were sold at 96, were oversubscribed for twenty times, and sold at 103 at the end of the year.

The foregoing issues do not include State and municipal bonds, which found an ever better market as the year advanced. New York City sold bonds in February at a price yielding 4.3 per cent., and in November at a price yielding 3.89 per cent. New York State bonds sold in March so as to yield 3.7 per cent., and in December so as to yield 3.5 per cent. The February sale of New York City bonds was in amount \$50,000,000 par value, the largest sale of city bonds ever made at any time and place. It was oversubscribed six times. Similarly, the sale of \$12,000,000 of bonds by the city in December was oversubscribed twelve times. The sale of \$30,000,000 Panama bonds in December by Secretary Cortelyou was very successful.

INVESTIGATIONS. On December 15, Governor Hughes, of New York, appointed a committee to investigate dealings on the stock and commodity exchanges in New York City. The committee,

representing a wide variety of talent and experience, consisted of Horace White, author and financial editor, Chairman; John B. Clark, economist; Willard V. King, banker; Edward H. Page, wholesale dealer; Clark Williams, State Superintendent of Banking; Ex-justice David Leventritt; Chas. A. Schieren, merchant; Samuel H. Ordway, lawyer; and Chas. S. Smith, director of the People's Institute. The committee determined upon a policy of secrecy with reference to results of its inquiries until its report was ready for submission to the Governor.

NEW CORPORATIONS. The new incorporations during the year were fewer than in 1907. The aggregate par value of the authorized capital of new concerns, with at least \$1,000,000 authorized capital, in the Eastern and New England States was \$1,251,197,000. This was 14 per cent. less than in 1907 and not much more than half the total for 1906. The incorporations of large concerns in all other States totaled \$310,955,000 authorized capital, or 40 per cent. less than in 1907; and the total capital of concerns in all states with more than \$100,000 and less than \$1,000,000 authorized capital was \$497,931,000. During the early part of the year there was great hesitation about forming new companies, but as the confidence of investors returned and business increased, the number and amount of new incorporations increased, reaching 50 per cent. of normal for the past eight years by August and 5 per cent. of normal by the end of the year.

The leading concerns chartered during the year and their authorized capital were as follows: The International Smelting and Refining Company, \$50,000,000; the Independent Fertilizer Company, \$50,000,000; the Phelps and Dodge Company, \$50,000,000; the United States Light and Heating Company, \$17,500,000; the American Piano Company, \$12,000,000; the National Silk Dyeing Company, \$10,000,000; the Tennessee Chemical and Fertilizer Company, \$10,000,000; the Corn Products Refining Company, a consolidation of the Corn Products Company and the old Corn Products Refining Company, \$80,000,000; the American Steel Foundry Company, a new incorporation of an old concern, \$17,184,000; the Atlantic, Gulf and West Indies Steamship Lines, the successor to the Consolidated Steamship Company, \$40,000,000; the Cerro De Pasco Copper Company, \$60,000,000; the American Railways Company, incorporated at Pierre, S. D., \$150,000,000, its object being to build a road from Chicago to Winnipeg.

The incorporations were distributed among principal states as follows: New Jersey, \$475,330,000; Maine, \$339,325,000; Delaware, \$226,420,000; New York, \$149,882,000; and Illinois, \$89,605,000.

FAILURES. (a) *Commercial.* The number of business failures in the United States in 1908 as reported by *Bradstreet's* was 14,066, as compared with 10,258 in 1907 and 9,384 in 1906. Only in 1893 and 1896 has this number been exceeded. The total assets of failures in 1908 were \$167,807,000 and total liabilities \$296,486,000, as compared with \$287,814,000 and \$384,057,000 respectively in 1907. Thus the total of liabilities of failures was much smaller in 1908 than in 1907, but the ratio of assets to liabilities was also smaller, 56 per cent. in 1908 and 75 per cent. in 1907. While the majority of the failures in 1908 were small ones, there were 320 with liabilities of \$100,-

000 or more, as compared with 327 in 1907, the aggregate liabilities of such failures being 60 per cent. of the total in 1908, and 75 per cent. in 1907. This large percentage in 1907 was due to the fact that fully \$125,000,000 of liabilities included in the total for that year were those of large firms which suspended in October and later resumed business without becoming insolvent. This fact also accounts for the high ratio of assets to liabilities in 1907, a ratio probably never before equalled; this ratio in 1908 (56 per cent.) exceeded that of every other year since 1896. By groups of States the number of failures and the total liabilities were as follows: New England, 1,333, \$18,076,000; Middle, 4,806, \$150,395,000; Western, 2,456, \$52,574,000; Northwestern, 768, \$16,190,000; Southern, 3,467, \$43,250,000; Far-Western, 1,197, \$15,532,000; Territories, 39, \$467,000. This grouping of States is peculiar: *Middle* includes New York, New Jersey, Pennsylvania, and Delaware; *Southern* includes the 13 Southern States, Oklahoma, and the District of Columbia; *Western* includes Ohio, Indiana, Illinois, Michigan, Kentucky, Missouri, Kansas, and Colorado; *Northwestern* includes eight, and the *Far-Western* six States. Every division showed an increase in the number of failures in 1908 over 1907, while all but the Western and Northwestern States showed decreases in total liabilities. This decrease in New England was 57.5 per cent. and in the Middle States 26.2 per cent. The number of failures in New York City in 1908 was 2,071 and the liabilities, \$97,747,000, an increase of 46.6 per cent. in the number but a decrease of 23.4 per cent. in the liabilities as compared with 1907.

The distribution of failures by industries, for the year ending Nov. 30, according to *Dun's Review* was as follows, with liabilities in each case: Manufacturing, 3,852, \$111,723,000; trading, 11,328, \$91,684,000; brokers and transporters, 609, \$41,065,000; banking, 207, \$152,493,000. The greatest amounts of liabilities were charged against manufacturers of machinery and tools, and lumber, and millers; and against general stores and dealers in meat and groceries.

(b) *Financial.* The record published by *Bradstreet's* showed that there were 132 failures or suspensions of national, State, and private banks, and loan and trust companies, with aggregate assets of \$66,735,000 and aggregate liabilities of \$93,525,000. Though bank failures were less than 1 per cent. of the year's total number, they furnished 31 per cent. of the total liabilities. In 1907 failures and suspensions numbered 89, assets were \$188,464,000 and liabilities \$206,266,000. Many of these banks later resumed payments, but the effect of a bank suspension on business is comparable to the effect of a failure. This fact is of special significance owing to the fact that financial failures and suspensions of 1907, most of them occurring in the later months, accounted for 54 per cent. of all liabilities of failing concerns in that year. Thus it appears that the break in prosperity late in 1907 was distinctly a financial collapse. The number of bank failures in 1908 greatly exceeded the number in 1907, and was only exceeded in 1893, 1895 and 1896. The liabilities, however, were less than half those of 1907, and little more than half those of 1893, though greater than those of any year between those two. Private banks furnished 41 per cent. of the number and 29 per cent. of the liabilities

of banking failures. Trust companies, which furnished 57 per cent. of the liabilities of bank failures in 1907, furnished only 13 per cent. in 1908. National banks furnished 19 per cent. of the liabilities in 1907 and 24 per cent. in 1908; and state banks furnished 9 per cent. in 1907 and 30 per cent. in 1908. The numbers of various kinds of banks failing or suspending were: National, 18; State, 35; savings, 9; private, 55; loan and trust companies, 15. With reference to national banks liquidating in the year ending Oct. 31, 1908, the report of the Comptroller of the Currency stated that 7 were wrecked by the cashier, 1 by defalcation of officers, and 3 by fraudulent management; 6 failed because of excessive loans followed by depreciation of securities, 2 because of excessive loans to officers, 1 because of the failure of large debtors, and 1 because of general money stringency.

CANADA. The commercial failures in Canada in 1908 numbered 1,714, with total liabilities of \$17,586,000 and assets of \$7,844,000. Compared with 1907 the number of failures increased 25.5 per cent., the liabilities 50.2 per cent., and the assets 30.5 per cent. This comparison seems to indicate that the financial panic and business depression did not produce their effect in Canada until after the close of 1907, a condition the reverse of that in the United States.

GREAT BRITAIN. As in other principal financial centres, London experienced a marked change in the condition of the money market from stringency at the close of 1907 to abundance after the middle of 1908. There was a decrease in the demand for loans; a decrease in the retail trade and of necessary circulation; and a decrease in prices, which, however, recovered steadily during the later months of the year. Unlike bankers in New York, Berlin, and Paris, who accumulated unusual gold reserves, London bankers showed great confidence in making investments, the amount of English capital placed abroad probably exceeding that of any previous year. The Bank of England reserve did not for this reason increase materially during the year, nevertheless its discount rate fell from 7 per cent., the abnormally high in Nov., 1907, to the abnormally low, $2\frac{1}{2}$ per cent., a year later. The dullness in the stock market showed itself in a decline of \$800,000,000 in bank clearings on stock exchanges in 1908 as compared with 1907. Nevertheless, there was an average advance of 5 per cent. in the value of 387 selected securities dealt in on the London exchange, showing an aggregate advance of \$950,000,000 in value. It should be stated that more than half of this advance was credited to 33 American railway stocks. In international trade Great Britain suffered greater losses than the United States, Germany or France. Her total loss exceeded \$500,000,000, about equally divided between decreased imports and decreased exports. The year was notable for the severe depression in the iron and steel and ship-building industries, while textile mills experienced a quite marked decline in business. As a result unemployment (q. v.) reached an unprecedented extent, a condition giving a gloomy aspect to the industrial and trade situation at the close of the year.

FRANCE. France is the creditor of almost all nations. One effect of this condition was the accumulation of an enormous gold reserve by

the Bank of France, this reserve increasing by \$150,000,000 from Jan. 16 to Dec. 11, when it amounted to \$700,000,000, an amount never before equalled. The reason for this calling in of balances from all nations was stated to be the lack of confidence in the existing industrial and financial condition in England, Germany, and America, but was also closely connected with the political situation in Europe. The American crisis affected France less than did the depression in Germany. The German industries have secured capital from France, and will need more; the Balkan crisis and the Moroccan affair introduced a note of trepidation into international financing; Russia made preparations for borrowing \$250,000,000. All these facts caused French gold to remain temporarily idle. The demand in the home retail trade was about up to the normal level, but there was a noticeable decline in the production for export.

GERMANY. The year in Germany was one of moderate decline, but not of crisis. There was an unusual amount of unemployment (q. v.), as a result of slackness in various industries. But the general conservatism of bankers and business men prevented any collapse of business. This is shown by the fact that total railway receipts were only 1 per cent. less than in 1907, freight receipts being $3\frac{1}{2}$ per cent. less. The foreign trade of the first ten months showed imports 9 per cent. less and exports 2 per cent. greater than during the same period in 1907. The later months showed improvement in tone. The coal output was greater by 9,000,000 tons than that of 1907. The iron and steel trade however, showed considerable falling off, dividends of fourteen large companies being reduced from an average of 16 per cent. in 1907 to 12 per cent. in 1908. One of the causes of a bad year in smaller industries was the maintenance of high prices by the Steel Works Union (comparable to the United States Steel Corporation), and by the syndicate of coal companies. A sharp reduction in steel prices near the close of the year gave a decided stimulus to that and allied industries. As in the United States, the slackened trade and industrial conditions resulted in a considerable accumulation of cash capital which tended to stimulate business revival. The cash holdings of the Reichsbank were \$100,000,000 larger in Nov., 1908, than a year earlier. There was an advance also in the values of securities. This was due in part to the fact that in spite of the prosperity of 1907, financiers and investors had forced values down to the lowest possible point, so that no marked recession in values followed the Wall Street crisis in October. All bonds were quoted higher in Nov., 1908, than one year earlier. The stocks of the eight leading Berlin banks averaged 154.25 in Nov., 1908, as compared with 148.50 in Nov. 1907. Shares of iron and steel companies were one or two points less in 1908 than in 1907, and those of coal companies considerably less. There were slight decreases in the stocks of the Transatlantic Steamship Companies, of the large chemical concerns, and of textile companies, but slight advances in those of machinery, street railway, and electrical companies. With favorable price reductions in steel, and abundance of ready capital, German industries were awaiting the more complete revival of business in the United States before returning to fully normal conditions. One of

the unfavorable features of the financial situation is the demand by the Imperial treasury for new sources of revenue capable of supplying about \$110,000,000 annually, and the proposal to tax illuminating gas, electricity, and wines. If levied, these taxes will have considerable industrial effect.

FINLAND. A Grand Duchy, forming a part of the Russian Empire. Area, 144,255 square miles. Population on Dec. 31, 1906, 2,933,856. The movement of population in 1906 was as follows: 19,937 marriages, 91,401 births (excluding 2,317 still-births), 50,857 deaths, and 17,287 emigrants. The population of the principal cities in 1908 was: Helsingfors, (1907) the capital, 130,526; Abo, 45,102; Tammerfors, 42,577; Viborg, 32,648; Nikolaistad, 19,040; Uleaborg, 18,227; Björnborg, 16,521; Kuopio, 14,491. Including the Russian garrison and a floating population of 10,000, Helsingfors had 140,000 inhabitants at the end of 1906.

PRODUCTION. The principal crops are rye, barley, oats, and potatoes. Some wheat, flax, and hemp are also grown. At the end of 1905 there were 323,514 horses, 1,480,692 horned cattle, 937,565 sheep, 6,276 goats, 220,357 pigs, and 141,811 reindeer. The butter export in 1906 was 15,056 tons. The Crown forests covered in 1905 13,129,376 hectares (1 hectare = 2.47 acres). Timber is the largest item in the list of export values. In 1905 there were 189 saw-mills with water power and 400 with steam power, employing 21,640 workers, and turning out 2,864,222 cubic meters of timber. The production of iron ore in 1905 was 48,404 tons; pig iron, 22,407 tons; bar iron, 19,897 tons. Exclusive of flour mills, there were in 1905, 9,054 manufacturing establishments, employing 107,828 workers, and turning out a product valued at 392,544,700 marks (mark=franc=19.3 cents). The industries with the largest output are wood, iron and mechanical works, textiles, paper, leather, and chemicals.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1907 amounted to 379,100,000 and 267,200,000 marks respectively, against 313,900,000 and 281,400,000 in 1906. The principal imports in 1907 were, in millions of marks: Cereals, 83.7; machinery, 25.6; iron and manufactures thereof, 22.1; minerals, 18.4; cotton, 14.6; coffee, 14.5; sugar, 12.8; chemicals and dyes, 11.9. The principal exports in 1907 were, in millions of marks: Timber, 139.5; paper and wood-pulp, 43.4; butter, 31.5; hides and skins, 7.3; fish, 5.3; iron, 4.8; wood manufactures, 3.5; cotton tissues, 2.4. The trade with the principal countries of origin and destination in 1907 was as follows, in millions of marks:

From and to	Imports	Exports
Russia.....	152.9	30.8
Germany.....	111.2	72.5
Great Britain.....	45.6	84.3
France.....	4.6	25.8
Denmark.....	26.8	8.5
Sweden and Norway.....	19.8	9.8

In 1907 the ports were entered by 8,571 ships of 2,490,578 tons (926,191 Finnish, 207,572 Russian), and cleared by 8,367 ships, of 2,471,366 tons (918,724 Finnish, 197,392 Russian). The merchant marine consisted on Jan. 1, 1908 of 393 steamers, of 60,784 tons, and 2,652 sailing

vessels, of 304,660 tons. The length of railway in Jan., 1908, was 2,072 miles, over nine-tenths being owned by the State. In April, 1907, the Swedish Parliament granted the money for a railway to the Finnish frontier, to be completed in three or four years. In Nov., 1908, the Finnish Senate assigned 2,500,000 rubles (1 ruble=51.5 cents) for connecting the Russian and Finnish Railway systems.

GOVERNMENT. The Emperor of Russia is Grand Duke of Finland. The old national Parliament, consisting of representatives of the nobles, clergy, burghers, and peasants, was abolished in 1907. The new unicameral Diet consists of 200 members, elected by direct and universal suffrage, without distinction of sex. Every citizen entitled to vote is eligible to the Diet. At the first election, in 1907, 22 women were elected as members of the Diet. Proportional representation is provided for. The Diet lasts for three years, unless sooner dissolved by the Grand Duke. The executive, at the head of which are the Russian Secretary of State for Finland and the Governor-General, is responsible to the Grand Duke as well as to the Diet. The Diet cannot change the fundamental laws, nor may it legislate in regard to land and sea defense. Finland is included in the St. Petersburg military district. The Governor-General in 1908 was Gen. W. A. Boeckmann.

FINANCE. In 1907 the revenue amounted to 134,382,249 marks, and the expenditure to 130,340,191 marks. The principal sources of revenue were: State lands and forests, 11,151,124 marks; railways, 39,594,833; direct taxes, 6,151,256; customs, 49,212,609; excise, 8,195,395; posts, 5,897,467. The principal items of expenditure were: Civil list, 375,900 marks; justice and prisons, 4,266,663; worship and public instruction, 12,267,922; communications, 40,733,484; military affairs, 180,501; public debt, 6,259,412. The public debt stood on Jan. 1, 1908, at 137,516,878 marks. For history during 1908, see RUSSIA.

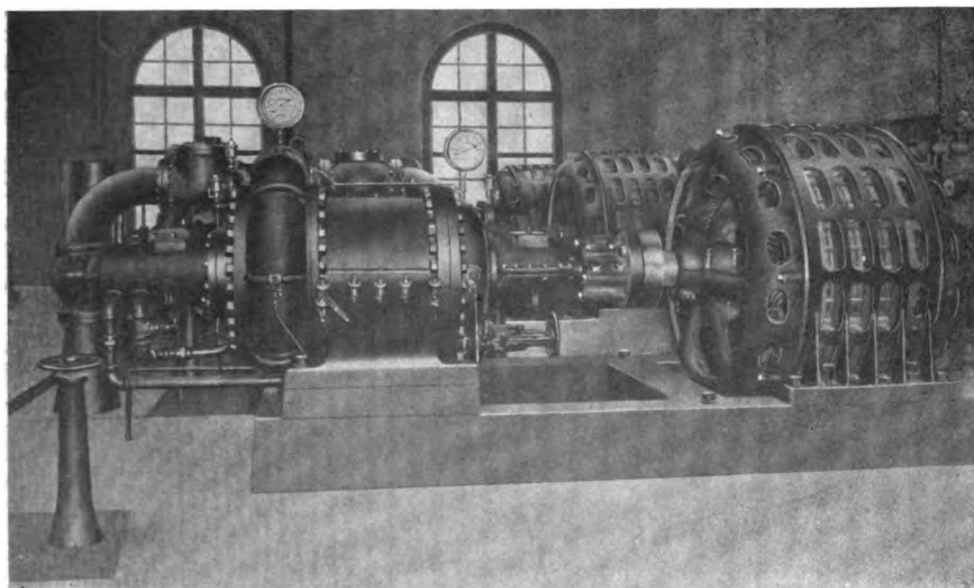
FIRE INSURANCE. See INSURANCE.

FIRE PROTECTION, MUNICIPAL. The construction, extension, and test of high-pressure independent or auxiliary systems of water mains for fire protection was a striking feature of the year, 1908, as by many the completion of New York's high-pressure systems for the business district of Brooklyn and the downtown portion of Manhattan was considered to have marked an epoch in fire-fighting, and the increased use of the central high power pumping station to supplant or as auxiliary to the mobile fire engines furnished to the city much needed protection. So successful has the high-pressure system of Philadelphia, the first large system of auxiliary mains for fire purposes exclusively, proved, that during the year bonds to the amount of \$500,000 were issued for its extension in the northeast part of the city. In San Francisco the very complete scheme for a system of elevated storage reservoirs, distributing reservoirs, and a high-pressure distribution system developed in 1907 was duly approved, and bonds were issued to enable the work to be commenced.

In a number of other American cities high-pressure systems of greater or less size and capacity were either in operation or were contemplated and where such systems of independent mains are supplied by fire boats, there



Test of hydrants and hose lines with high pressure



**Allis-Chalmers multi-stage centrifugal pumps driven by induction motors installed in
Oliver Street Station, Borough of Manhattan**

HIGH PRESSURE FIRE SERVICE FOR NEW YORK CITY

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was a movement to have independent stations of permanent character substituted. In New York centrifugal pumps direct connected to alternating current induction motors were used and current supplied by the Edison companies under the terms of yearly contracts, a fixed sum being paid for reservation of power and a rate for current actually consumed. The Brooklyn system was the first to be completed and protects the business and manufacturing parts of that borough, a district lying along the East River from Erie Basin to the Navy Yard, varying in width from a mile to a few hundred feet and about three miles in length, amounting to 1,360 acres. Here a carefully planned network of over 22 miles of mains have been laid, on which are placed at frequent intervals special high-pressure hydrants, while a number of telephone boxes connects fire headquarters and the pumping stations with the individual hydrants. There are two pumping stations, one with five units, each capable of pumping 3,000 gallons per minute against a pressure of 300 pounds, located near the East River at Jerolamon and Furman Streets and connecting with the river by an underground intake so as to use salt water in case of an emergency, while the second or reserve station is located at St. Edwards and Willoughby streets and contains three similar units.

In Manhattan the installation naturally was more extensive and was designed to protect that part of the city between the North River, 23rd street, Second avenue and East Broadway, and Chambers street, a territory aggregating 1,454 acres. In this district were laid 265,000 feet of extra heavy mains tested at the factory to 600 pounds to the square inch, and in the trench with joints, valves, and hydrants to a pressure of 450 pounds. Of the pipe laid, 36,000 feet was 24 inches in diameter, 30,000 feet 20 inches, 47,000 feet 16 inches, and 152,000 feet of 12 inch. The mains of larger size naturally were used to bound the protected area, while parallel and intersecting mains not only provide for maximum amount of circulation but afford sufficient water at any point in the district. On the mains at such intervals that there is always one within at least 400 feet of any building in the district, 1,272 hydrants have been placed, or one hydrant per acre and one to every 210 linear feet of main, while in boxes convenient to each hydrant are telephones connecting with the pumping stations. The contract cost of laying the mains and installing the distribution system was \$2,824,282.75, or an average cost of \$2000 per acre of territory protected, or \$11 per linear foot of main. The pressure, which may amount to as much as 300 pounds to the square inch, is supplied from pumping stations at West and Gansevoort streets, and at South and Oliver streets, where two stations of similar size and design are located at favorably placed points outside of the region of high risk. Each station was equipped with five units, centrifugal pumps, direct connected with induction motors supplied with alternating current by the Edison Company. The combined capacity of the two stations was over 30,000 gallons per minute at a pressure of 300 pounds available at any place in the district.

During the summer the system was put in use and special hose and hose wagons were concentrated in the district. Three engine companies were transformed into special high-pressure hose

companies and the engines were transferred uptown, while all the companies were given special strong hose and were trained in the use of the high pressure, which though effective presented many novelties and some uncertainties. In general it was a pronounced success, and it was considered that the day of three alarm fires and lack of water had passed, but on two occasions, namely at fires at Walker and at Grand streets, the system failed temporarily and the fires were permitted to get some headway, though quenched before they became large conflagrations. In all other cases the high pressure performed in the main satisfactorily, notwithstanding the fact that on occasions the lack of familiarity of the firemen with the apparatus was apparent. The high-pressure system now removes the danger of a large and destructive conflagration in the lower part of the city and on the strength of its work during the first few months of its use an appropriation was made for its extension from Chambers street north to East Houston street. Fresh or city water is used ordinarily by the pumping stations, but each is supplied with a salt water intake extending to the river so that an unlimited supply is available in case of failure of the city water or in the event of a large conflagration. The installation of the high-pressure system in New York and Brooklyn was followed by considerable reductions in insurance rates, varying in the different zones and boroughs. The reductions in New York City amounting to 10 and 5 per cent. it was said aggregated \$400,000 per annum. The high-pressure mains extend to the bulkheads on the river front and connection can be established with the powerful pumps of the fleet of fireboats, which during the year was increased by the addition of two new and more powerful boats. Two large fireboats also were added to the Chicago fire department and were supplied with electrically driven rotary pumps, the dynamos being driven by steam turbines.

A matter of increased interest during the year was the increased use of motor fire apparatus, aside from high speed motor cars for chiefs of departments, particularly in the smaller cities. These automobile vehicles were adopted to secure increased speed and radius of action, and carried their chemical tanks with small amount of chemical hose or small pumps, to which the driving motors of the automobile could be connected. These extremely mobile vehicles with a crew of five or more men, could be sent out immediately on receipt of an alarm, and often by their prompt arrival put out an incipient fire. In some cases the apparatus carried scaling ladders and other devices, while at the end of the year a large, high-powered truck for the high pressure service of New York City, capable of carrying forty lengths of the heaviest hose, was under construction.

FISHER, ANDREW. An Australian political leader, premier of Australia, born at Crosshouse, Kilmarnock, Scotland, on Aug. 29, 1862. He was educated at Crosshouse, and at the age of twenty-three went to Queensland, Australia. In 1893 he was elected to the Australian Parliament. He subsequently served as minister of railways; was a member of the first Commonwealth Parliament; and was for a time Minister for Trade and Customs. On Nov. 12, 1908, he formed a new ministry, in which he is premier and treasurer.

FISHERIES. The YEAR BOOK for 1907 referred to the research work carried on at the United States Bureau of Fisheries Laboratory at Woods Hole, Mass. A more complete report of this work appeared in May, 1908, published by the Director of the laboratory, Dr. F. B. Sumner. A comprehensive biological survey of the region, including preparation of an annotated list of the fauna and flora of the neighboring waters, and extensive determinations of temperature and density, was nearly finished, some of these researches having been continued into the spring of 1908. Experiments were continued on the determination of the palatability and food value of the smooth dog-fish, the squid, and the mussel. It appeared that the "gas bubble" disease which had proved so annoying to fish in confinement, is probably due to excess of air in the water, rather than a bacterial infection. Accordingly a "deaerator" apparatus was devised for use with the water supply to aquaria, and this promised to remove this particular annoyance.

FISHERIES CONGRESS. The Fourth International Fisheries Congress met in Washington, Sept. 23d to 25th, 1908. Delegates were present from nearly every State in the Union, and from about twenty foreign countries. The principal subjects discussed were international fisheries regulations, descriptions of apparatus for hatching and transporting fish, the utilization for food of products such as dog-fish and mussels, not now commonly used, and the protection, in the United States, of lobsters on the Atlantic coast and of white fish on the Great Lakes. Mr. Ayson, of New Zealand, reported that steel-head trout, imported from America about twenty-five years ago, were extremely abundant there, and that Chinook salmon, planted between 1901 and 1907, were well established. Prizes for contributions on special subjects were awarded to eleven competitors.

The life history of the common eel has been very little understood, though, it was shown in 1897 by Grassi and Calandruccio that a pelagic form previously called *Leptocephalus* was in reality the young of this fish. Additional information was obtained and published through the researches of the Danish Fisheries Bureau. Spawning apparently takes place in very deep water, but the process has never been observed. The first indication of the young brood is when the *Leptocephalus* larva appears during May, in regions where the total depth of the water is 100 metres or more. The larvæ swim at the surface during the night, sinking to a depth of 100 meters or so during the day. The period of metamorphosis lasts about a year, during which time the animal takes no food, so that it gets progressively smaller and changes from the flat, ribbon like original form to the rounded "elver" which begins to ascend the rivers. The Danish Commission for the study of the Sea reported on the growth of the plaice, showing that this differs in amount in different localities. The Norwegian herring investigations were carried on by the *Michael Sars*, the vessel engaged in international investigations. The age of herrings, according to this report, is determined by the number of rings on the scales rather than by absolute size, the latter varying in different localities, being greater in fish living in open sea than in those living in sheltered localities.

The British Committee appointed to inquire into the scientific and statistical investigation now being carried on in relation to the fishing industry presented a report recommending, among other things, the following: The continuance of international coöperation in scientific and statistical investigations upon a definite and permanent basis; the continuance of the annual grant of £1,000 to the Marine Biological Association of the United Kingdom; and the establishment of a central council for the United Kingdom, which should have power to arrange for such scientific and statistical investigation as shall be considered desirable for the interests of the fisheries of the kingdom, and to administer such funds as may be voted by Parliament for the purpose of such inquiries.

In the United States the sturgeon was reported as approaching extinction. For a time it was regarded as a pest by the fisherman, who killed it whenever they could, and the more recent utilization of the eggs for the manufacture of caviare decreased the numbers very considerably. Several States considered measures of protection, but thus far owing to lack of uniformity in the laws of different States, little good had been done by legislation.

The British North Sea Fisheries Commission published in 1908 its report on the work covering the time from 1904 to 1905. It was discovered in 1899, by Reibisch, that the concentric rings in the otolith of a fish indicate its age, and this method was employed in determining the growth of the plaice. The older fish are found in deeper water. The female is longer lived than the male, those eight years old and upward being 91 per cent. females. The young of all fish feed on crustaceans, and competition between them is very keen. As they grow older, however, each species of fish limits itself to one species of crustacean.

The report for 1907 of the Lancashire Sea Fisheries Hatchery appeared in 1908. Considerable work was done on the migration of the plaice, and the study of the plankton of the Isle of Man. From the latter study it was observed that the zone of most abundant life is not at the surface, but at a depth of several fathoms. An important part of the report was a monograph on *Cancer*, the edible crab, which contained a good deal of information hitherto inaccessible to the ordinary reader on the biology of this form. The value of the crab fisheries on the coasts of England and Wales was reported as nearly £60,000 annually.

FITHIAN, EDWARD. An American naval officer, died on August 29, 1908. He was born in New Jersey on December 13, 1820; became third assistant engineer in the United States Navy in 1848; was promoted to second assistant engineer in 1851; and advanced to chief engineer in 1859. During the Civil War he served on the *Roanoke*, and was for a time stationed at New York City. His frigate, the *Susquehanna*, accompanied Commodore Perry's expedition to open the ports of Japan, and was also the escort of the *Niagara*, when the first attempt was made to lay the Atlantic cable. In 1882 Captain Fithian retired, and in 1906, in recognition of his service during the Civil War he was made rear-admiral and placed on the retired list with that rank.

FLAX. During the three years 1906-1908, the production of flaxseed in this country varied but little. In 1908 2,679,000 acres of flax were

grown and this area produced 25,805,000 bushels of seed. The crop of flax grown for fibre in the United States is a negligible quantity. The average yield of seed was 9.6 bushels per acre, the average price per bushel on December 1, \$1,184, and the total value on the same date \$30,577,000. While acreage and yield did not vary much, the price per bushel showed marked fluctuations. In 1907 the average bushel price on December 1 was 95.6 cents, and in 1906 101.3 cents. The average price for 1908 was the highest recorded since 1906, and the total value of the crop was the largest since 1902, when the Department of Agriculture began publishing more complete statistics on the crop. As in former years North Dakota ranked first with a total yield of 13,770,000 bushels, followed by South Dakota with 5,885,000 bushels, and Minnesota with 4,526,000 bushels. The aggregate production of these three States, amounting to 24,181,000 bushels, represented about 94 per cent. of the total production for the entire country. Of the ten States reporting yields of flaxseed the highest average yield, sixteen bushels per acre, was secured in Wisconsin, and the lowest, six bushels per acre, in Oklahoma. The average yield for North Dakota was only nine bushels per acre. Kansas and Nevada also report low average yields.

In 1906 the world's production of flaxseed was only 87,541,000 bushels, as compared with approximately 100,000,000 bushels the year before. The same year Argentina, which for several years previous had produced more flaxseed than the United States, ranked second in the world's production, the United States standing first and European Russia third. These three countries produced about 77 per cent. of the world's crop. The world's flax fibre production is limited to Europe and Asia. The yield of fibre in 1906 amounted to 1,846,235,000 pounds, and of this quantity Europe furnished 1,790,021,000 pounds, to which European Russia contributed 1,450,930,000 pounds, and Austria-Hungary, ranking next in importance, 164,620,000 pounds. These countries were followed by France with 46,109,000 pounds, Italy with 41,917,000 and Ireland and Belgium with 26,934,000 and 26,843,000 pounds, respectively.

Although the United States at present produces only flaxseed, an effort was made by the experiment station to create an interest also in growing the crop for fibre. For this purpose it is necessary to develop fibre-producing varieties adapted to our conditions. The Michigan experiment station dropped its work with flax for seed production and was developing strains for fibre growing. About 250 plats of fibre flax were being grown, and each year the seed of those plats only which produce the tallest and finest stems was saved for further trial. The best varieties of seed flax tested in 1905 and 1906 by the Kansas experiment station ranged in yield from 9.15 to 11.58 bushels per acre. The best average yield of seed was secured by seeding at the rate of three pecks per acre, while the thickest sown flax, five pecks of seed per acre, produced the largest quantity of straw, 4,723 pounds per acre.

FLETCHER, JAMES. An English-Canadian botanist, died on November 9, 1908. He was born near Wrotham, Kent, England, on March 28, 1852, was educated at King's School, Rochester, and in 1874 went to Canada. He was then Dominion Entomologist to the Department of Agriculture until in 1887 he was appointed

Entomologist and Botanist to the Dominion Experimental Farms at Ottawa. In the same year he became assistant editor of the *Canadian Entomologist*. Of the Ottawa Field Naturalists' Club he was the organizer and president. In 1886 he was elected a fellow of the Linnean Society of London, and he was the leading spirit of the Botanical Club of Canada. His energetic and successful work in devising ways of exterminating harmful insects got for him the name of "the farmer's friend" throughout Canada. In botany he made an especial study of aquatic forms and violets. He had published a "Flora Ottawaensis" in the *Transactions of the Ottawa Field Club*, vols. 1-V (1880-84), and continued that subject in the *Ottawa Naturalist*, vols. II-VII (1888 and afterwards).

FLORIDA. The southernmost State of the American Union. Its total area is 56,666 square miles, of which 3,085 square miles are occupied by lakes, rivers, and ponds. According to the Federal census of 1900 the population was 528,542, and by the State census of 1905, 612,541. According to the Federal estimate of 1908 the population in that year was 662,942. The population of the largest cities in 1905 was: Jacksonville, 35,301; Tampa, 22,823; Pensacola, 24,850; Key West, 20,498.

MINERAL PRODUCTION. The legislature of 1907 authorized a State Geological Survey. Work was begun in 1907 and was vigorously pursued until 1908. The leading industry of Florida is phosphate mining. From 1888, the beginning of actual mining, to the beginning of 1908, 12,000,000 tons of phosphate to the value of \$48,000,000, were obtained from Florida fields. The amount produced in 1907 was 1,386,578 long tons, valued at over \$6,500,000. Among other minerals which are mined in large quantities are clay, including plastic, kaolin, and brick-making clays, fullers' earth, lime, and cement. Kaolin was mined in 1907 to the value of \$97,690 from 19,615 tons. The production of fullers' earth in 1907 was 24,148 short tons, valued at \$235,443. Road-making materials, including flint, chert, and road-making clays, are also found in the State. In 1907 native sulphur was found in Florida, a large mass estimated to weigh two tons having been brought up from the pit of the Dutton Phosphate Company of Floral City. In 1907, 43,430 gallons of mineral water, valued at \$12,378, were produced. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$7,365,754, as compared with \$6,395,825 in 1906.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal crops in 1908 were as follows, according to the figures of the United States Department of Agriculture: Corn, 6,584,000 bushels, valued at \$3,309,000 from 627,000 acres; oats, 425,000 bushels, valued at \$313,000 from 30,000 acres; rice, 50,000 bushels, valued at \$46,000 from 2,000 acres; potatoes, 415,000 bushels, valued at \$560,000 from 5,000 acres; hay, 26,000 tons, valued at \$385,000, from 19,000 acres; tobacco, 5,568,750 pounds, valued at \$949,662, from 5,625 acres. The cotton crop of 1908-9 was estimated at 61,000 bales, which is slightly less than the crop for 1907-8, which was 64,000 bales. The production has steadily fallen from 1904, when the crop was 80,551 bales. The number of farm animals in 1908 was as follows: Horses, 54,000; mules, 20,000;

dairy cows, 93,000; other cattle, 691,000; sheep, 99,000; swine, 447,000. The number of horses and all classes of cattle have increased considerably in the last few years. The estimated value of the wool clip in 1908 was \$72,000.

MANUFACTURES. Florida made very considerable progress in manufacturing from 1900 to 1905, though still unimportant as a manufacturing State. The census of 1905, including all establishments classed as factories, showed 1,413 such, with \$32,971,982 capital, an average of 42,091 wage-earners, and products valued at \$50,298,290. These four items were, respectively, 10.8, 28.4, 18.7, and 47.1 per cent. larger than in 1900. Of the wage-earners only 2,098 were women at least sixteen years of age, and only 337 were children under sixteen. The value of the products of leading industries in 1905 was as follows: Tobacco, cigars and cigarettes, \$16,764,276; lumber and timber products, \$10,901,650; turpentine and resin, \$9,901,905; planing mill products, \$1,690,455; and fertilizers, \$1,590,371. The manufacture of cigars and cigarettes made the notable increase of 56.2 per cent. in value of products from 1900 to 1905. Lumber and timber products increased very little, but the value of turpentine and resin increased 53.1 per cent. In this industry Florida ranked first in 1905. The quantity of spirits of turpentine produced in 1905 was 12,872,869 gallons, and the quantity of resin was 1,445,902 barrels of 280 pounds each. Both of these products increased greatly in market price during the five years. Tampa was credited with \$11,264,123 in value of products in 1905, Jacksonville with \$5,340,264, Key West with \$4,254,024, and Pensacola with \$1,936,751.

EDUCATION. According to the biennial report of the Superintendent of Public Instruction for the two years ending June 30, 1908, the total school population of the State is estimated at 224,677. The total enrollment of all pupils in all the public schools for the period was 134,722, thus showing that only about 60 per cent of the children of legal school age were enrolled in the public schools. Of the number enrolled only about 70 per cent., or 94,987, were in average daily attendance. The average length of the school term in the State for the scholastic year was 5.4 months. The average monthly salary of teachers in \$44.69 for a term of 5.4 months. The State has no compulsory attendance law, although attempts have been made to pass such a law through the legislature for several years. The Superintendent of Education in his report urges the passage of an optional compulsory attendance law, by which compulsory education shall be allowed in such counties as desire it. The Legislature of 1907 passed a law regulating the salaries of county superintendents of public instruction, establishing a graduated system of salaries, ranging from \$600 a year as a minimum to \$2,400. The average monthly salary of the county superintendents for the year 1907-8 was \$1,129. This measure has been found valuable in securing the services of competent men for their whole time.

FINANCE. The report of the treasurer for the fiscal year ending December 31, 1907, showed a balance on hand January 1, 1907, of \$120,777.28. The receipts for the year, including this balance, were \$939,717.88; the expenditures for the year were \$892,204.25, leaving a balance January 1, 1908, of \$47,513.63. The receipts of the one mill school fund for the fiscal year 1907 were

\$151,759.42; the expenditures, \$142,486.66, leaving a balance January 1, 1908, of \$9,272.76. The receipts of the pension tax fund for the fiscal year 1907 were \$611,930.93; the expenditures, \$354,653.17, leaving a balance on hand January 1, 1908, of \$257,277.76. The receipts of the States convict fund for the fiscal year 1907 were \$304,218.64; and the expenditures, \$241,234.64, leaving a balance on January 1, 1908, of \$62,984.

POLITICAL CONVENTIONS AND ELECTIONS. On June 16th the Democratic primary elections were held, in which candidates for United States Senator, Governor, and Railroad Commissioner were chosen. Governor Broward was defeated for the Senatorship by Duncan U. Fletcher, of Jacksonville. Albert W. Gilchrist, who was the local option candidate, won the nomination for Governor. The prohibition issue figured largely in the election. William James Bryan, who was appointed to the Senate in 1907, died on March 21, 1908, and Governor Broward appointed William Hall Milton, of Marianna, to succeed him. Mr. Milton's appointment was for the unexpired term of Senator Mallory, which had been previously filled by the appointment of Mr. Bryan. In the election of November 3, the vote for the National ticket was as follows: Bryan, 31,104; Taft, 9,923; Chafin, 1,356; Debs, 3,747; Watson, 1,946; Hisgen, 553. For Governor, Gilchrist (Dem.), received 33,036 votes; Cheney (Rep.), 6,453; Pettigrew (Soc.), 2,427.

OTHER EVENTS. A stubborn street railway strike broke out in Pensacola in April and rioting was carried on to such an extent that troops were ordered to the city on April 12th. The conflicts arose among the striking employees of the railroad and strike-breakers imported to take their places. See STRIKES.) On March 1st a fire destroyed eighteen and one-half city blocks in Tampa and destroyed 308 buildings, rendering 1,200 persons homeless. The loss amounted to \$600,000. Among the buildings burned were several large tobacco factories.

STATE OFFICERS. Governor, Albert W. Gilchrist; Secretary of State, H. C. Crawford; Treasurer, W. V. Knott; Comptroller, A. C. Croom; Attorney-General, Park M. Trammell; Auditor, Ernest Amos; Adjutant General, J. C. R. Foster; Superintendent of Public Instruction, W. M. Holloway; Commissioner of Agriculture, B. E. McLin—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, T. M. Shackelford; Associate Justices, W. A. Hocker, R. F. Taylor, J. B. Whitfield, Chas. B. Parkhill and R. S. Cockrell; Clerk, Milton H. Mabry—all Democrats.

The Legislature of 1908 was composed of thirty-two Democrats in the Senate, and sixty-eight Democrats and one Socialist in the House. The State representation in Congress will be found in the article UNITED STATES, section Congress.

FLUORESCEIN. An orange-red powder, prepared by the fusion of phthalic anhydride and resorcinol. It is known chemically as dioxy-fluoran and has the formula $C^{20}H^{14}O^6$. The sodium salt of fluorescein is used by ophthalmologists for the detection of minute foreign bodies embedded in the cornea, and the diagnosis of cornea lesions. Ulcers or areas of the cornea which have suffered a loss of epithelium will stain green and remain so for a time when treated with a weak solution of fluorescein, while the normal corneal surface will show no

change. Foreign bodies become surrounded by a green ring and thus become more visible. Ulcers of the conjunctiva are stained yellow.

FOLK LORE SOCIETY, AMERICAN. See ANTHROPOLOGY.

FOOD AND NUTRITION. FOOD INSPECTION. The National Food and Drugs Act of June 30, 1906, which forbids the importation into or exportation from the United States, the introduction into interstate commerce and the manufacture and sale in the District of Columbia and the Territories, of misbranded or adulterated food and drugs, received vigorous enforcement during the year 1908. The corps of inspectors who procure samples for analysis and information regarding the manufacture and sale of food and drugs was increased to thirty-nine. Additional branch laboratories for the examination of these products were opened at Honolulu, Nashville, Omaha, Pittsburg, and St. Louis, making a total of twenty-one of these laboratories in addition to the main laboratory of the Bureau of Chemistry of the Department of Agriculture, at Washington, D. C. Approximately 13,400 samples were collected during the year. Of these 814, which were found to be adulterated or misbranded, were reported to the Board of Food and Drug Inspection of the Department of Agriculture for preliminary hearing prior to referring them to the respective district attorneys for prosecution. Of the 135 cases actually pending during the year, fourteen criminal cases resulted in conviction with fines ranging from \$5 to \$700 and costs, and fourteen seizure and condemnation cases resulted in forfeiture and condemnation of the goods. Up to the end of 1908 not a single decision had been adverse to the government, and very great improvement in trade practices was effected in many lines of goods, manufacturers and jobbers as a class evincing a willingness to coöperate in the enforcement of the law. Under the national law the establishment of food standards is largely delegated to the Secretaries of Agriculture, Treasury, and Commerce and Labor, and the details of enforcement to the Secretary of Agriculture. A number of food inspection decisions were issued by the Department of Agriculture during the year, these being mainly rulings as to the use of quantities and labels, the use of dyes and preservatives, and similar details. Exception being taken by certain commercial interests to some of the earlier decisions, notably those relating to the addition to food of benzoate of soda and sulphur dioxide, a Referee Board of Consulting Experts, headed by President Ira Remsen, of Johns Hopkins University, was appointed by President Roosevelt to render final decision both as to the wholesomeness of these substances and as to other matters of controversy. Pending action by this board, the use of benzoate of soda, in amounts not to exceed one-tenth of 1 per cent., and of sulphur dioxide in ordinary amounts was permitted in goods to which they had commonly been added, provided the foods were properly labelled to show the addition of these substances. The importation of foods greened with copper salts was entirely prohibited after January 1, 1909, and the use of nitrogen oxids for the bleaching of flour was prohibited after June 10, 1909, except in exports to certain countries.

The various State pure food laws were for the most part vigorously enforced, a great advance in public sentiment being clearly apparent. There

seemed to be a distinct tendency to extend governmental regulation to such matters as misbranding as to the weight or volume of packages, the sanitary conditions under which food products are prepared, and in general the cleanliness and wholesomeness, as well as the purity of food and dairy products. An International Congress for the Repression of Adulteration of Alimentary and Pharmaceutical Products was held at Geneva, Switzerland, in September. About 400 delegates were in attendance, mainly from France, but also representing twenty-eight other nations. The chief business of the Congress was the formulating of definitions of standard food and drug products for adoption as an international "codex alimentarius" with a view to securing greater uniformity. An International Food Congress was also held at Ghent in November, at which particular attention was given to methods of analysis and related topics.

PROGRESS IN NUTRITION STUDIES. In connection with the administration of the various pure food laws, a large number of special investigations were conducted. Among these may be cited the extended studies by the Department of Agriculture and several experiment stations of the practice of bleaching certain grades of flour with nitrogen peroxid to produce a whiter product, such as seems to be demanded by many consumers. A series of digestion experiments was reported by Snyder, in which no difference whatever was observed in the completeness of digestion by healthy men of breads made from bleached and unbleached flours. Regarding the propriety of the practice there has been much difference of opinion among authorities. Experiments with preservatives were reported by Wiley, in which healthy young men were used as subjects. In experiments to test the effect of benzoic acid and benzoate of soda, data were obtained as to variations in body weight, composition and character of the excretory products, balance of income and outgo of sulphur, phosphorus and nitrogen, microscopic characteristics of the blood and urine and similar details, from which it was concluded that the administration of either benzoic acid or benzoate of soda is highly objectionable and produces a very serious disturbance of the metabolic functions, attended with injury to digestion and health. Similar experiments with sulphurous acid and sulphites led to the conclusion that these substances are likewise objectionable. Experiments were also conducted at the University of Illinois with special reference to the use of saltpetre in meat products and by the United States Referee Board on Foods on benzoate of soda.

Considerable progress was made along the line of preparing food products without preservatives. Methods were devised for preparing tomato ketchup, apple and grape juices, and canned peas, and there were also experiments in the drying of fruits. It was claimed that the necessity for the employment of preservatives was much over-estimated and that by proper precautions their use could be much restricted. A study of commercial meat extracts and similar preparations indicated that the nutritive value of this class of foods is rather limited, representing to only a partial degree that of the beef or other meat from which derived, but they are believed to possess considerable stimulating qualities and are also often useful on account of their flavoring properties.

Interest in food problems, especially from the standpoint of public health, received a notable impetus from the International Congress on Tuberculosis held in Washington, September 21 to October 12, at which much attention was devoted to questions dealing with the safeguarding of the milk and meat supply. A large amount of illustrative material was on exhibition in Washington and later in New York, and visited by thousands of people, which dealt not only with the specific prevention and treatment of tuberculosis, but also included many exhibits of practical application to everyday life. During the Congress, a model dairy was in daily operation, the milk from which repeatedly gave extremely low bacterial counts under conditions believed to be within easy access of the average producer.

Efforts to obtain additional national assistance in questions pertaining to public health were continued during the year under the leadership of the Committee of One Hundred on Public Health, which, together with the American Association for the Advancement of Science, the American Health League, and the National Legislative Conference of the American Medical Association, held an important symposium on public health in December in Baltimore. The matter of Federal action was formally brought to the attention of Congress by President Roosevelt in his annual message, in which he recommended the concentration under a single Executive Department of the work of the various government bureaus, such as the pure food and meat inspection service of the Department of Agriculture and the studies of the Public Health and Marine Hospital Service of the Treasury Department, which are now carried on along independent lines.

A special laboratory building for nutrition research was completed in Boston for the Carnegie Institution. This was equipped with a number of respiration calorimeters and accessory apparatus, whereby complete records may be obtained for days at a time of the income to and outgo from the human body of matter and energy, together with accurate data as to changes in body weight, body temperature, pulse rate, respiration, etc. Elaborate metabolism investigations have begun dealing with both physiological and pathological conditions. The first respiration calorimeter ever built in the United States, formerly at Wesleyan University, was re-located in one of the new laboratory buildings of the Department of Agriculture at Washington and entirely reconstructed for use in studies of the nutritive value of agricultural products used for human food and of methods for their more effective utilization.

A course in biochemistry was added to the curriculum of the Graduate School of Agriculture at its 1908 session. Lectures and seminars of the highest interest from the standpoint of human and animal physiology and nutrition were given by several authorities from this country and Dr. N. Züntz, of Berlin. Following a conference of those in attendance on these courses the American Society of Animal Nutrition was organized in November by agricultural college and experiment station workers with a view to improving the quality of investigation in animal nutrition and to promoting more systematic and better correlated study of its problems.

The question of the food requirements of the human body continued to be vigorously discussed

during the year, especially those phases bearing on the needs for protein and energy. One of the most important contributions to the subject was made by Captain D. McKay, professor of physiology of the Medical College of Calcutta, as to the metabolism of Bengalis. The Bengalis, who are descended from a race of the same general physique as Europeans, have accustomed themselves to a diet supplying only about one-third the quantity of protein usually considered to be most desirable. The researches reported indicate, however, that although the feasibility of maintaining the body for long periods of time in nitrogenous equilibrium on such low protein diets as have been recently advocated has been demonstrated, this is done at the cost of reduced physical development and efficiency and with increased susceptibility to certain diseases.

The subject of food and dietetics in its relation to home economics received much attention during 1908. In addition to regular undergraduate courses in home economics in about twenty-five agricultural colleges and similar institutions, a second session of the Graduate School of Home Economics was held at Ithaca, N. Y., July 13-24, in connection with the Graduate School of Agriculture. Brief extension courses on foods and other household questions were arranged for farmers' wives by several institutions. The department of household science of the University of Illinois offered a summer course at one of the Chautauqua assemblies, using tents furnished as a series of model rooms. Another innovation was a ten-day course in domestic science at the National Corn Exchange at Omaha, Neb., in which daily demonstrations and lectures were given to a regular class of sixty young women, but open to the general public. As an outgrowth of the Lake Placid Conference of Home Economics, which since 1899 has held annual meetings for the furtherance of work in home economics, an American Association of Home Economics was organized in Washington December 31, with an initial membership of over 800.

COST OF FOOD. Retail prices of food, as of most other commodities, continued to advance during the year. Data were published by the United States Bureau of Labor showing that for 1907 retail prices of food were 4.2 per cent. higher than in 1906 and that in December, 1907, prices were 25 per cent. higher than the average for the ten-year period 1890-1899. The advance was most marked during the year in flour, corn meal, potatoes, and milk, but no article showed any decline. Wholesale prices also increased to about the same extent.

NEW BOOKS. Among the books of the year are the following: H. Snyder, *Human Foods and Their Nutritive Value* (New York); Isabel Bevier and Anna R. Van Meter, *Selection and Preparation of Food, Laboratory Guide* (Boston); C. S. Read, *Fads and Feeding* (London); *Milk and Its Relation to the Public Health*, Public Health and Marine Hospital Service, U. S. Hygiene Laboratory Bulletin No. 41; E. Wagner, *Recipes for the Preserving of Fruit, Vegetables and Meat* (London and New York); J. Varges, *Nahrungsmittelchemie* (Leipzig); J. König and A. Juckenack, *Die Anstalten zur technischen Untersuchung von Nahrungs und Genussmitteln so wie Gebauchgegenständen in Deutsche Reiche* (Berlin); C. A. Neufeld, *Der Nahrungsmittelchemiker als Sachverständiger* (Berlin); Amy L. Pope and Mary L. Carpenter, *Essentials of Diet in Health and Disease* (New York);

C. Von Noorden, *Metabolism and Practical Medicine* (Chicago); C. A. Herter, *The Common Bacterial Infections of the Digestive Tract* (New York and London); O. Cohnheim, *Die Physiologie der Verdauung und Ernährung* (Berlin and Vienna); M. Rubner, *Volksernährungsfragen* (Leipsic); and *Das Problem der Lebensdauer und seine Beziehungen zur Wachstum und Ernährung* (Oldenburg); and M. Toubeau, *La législation répressive des fraudes et falsifications sur les produits alimentaires* (Paris).

FOOT AND MOUTH DISEASE. See VETERINARY SCIENCE. AGRICULTURE.

FOOTBALL. A striking feature of the football season of 1908 was the excellent showing made by the smaller colleges. This increase in strength was chiefly attained through the instrumentality of the new rules, which appear to have placed the smaller institutions on a more equal footing with the larger. The place and drop kicks were used with greater frequency than in any previous season and were the deciding factors in many of the important games. The forward pass, because of the severe penalties attached to its improper execution, and also because of the danger of the ball being secured by the opponents of the team executing it, was only utilized in times of extreme emergency. It is expected that changes in the rules governing this play will eventually have to be made. The fact that so many games played during 1908 ended in a tie score also seems to call for some innovations in the rules. Some experts recommend as a remedy an extension of the playing period for a certain length of time, or until the tie is broken.

Harvard was generally accredited with having had the best team among the Eastern colleges, having finished the season without losing a game. Pennsylvania also was undefeated, but that team's schedule was not regarded so difficult as Harvard's. These leading teams, however, were played to a tie, Harvard by Annapolis, and Pennsylvania by Carlisle. In the generally accepted ranking Harvard and Pennsylvania are followed in order by Yale, Dartmouth, Carlisle, Cornell, Brown, West Point, Annapolis, and Princeton. The following is a summary of the games played by the leading Eastern colleges: *Harvard* defeated Bowdoin 5-0, Maine 16-0, Bates 18-0, Williams 10-0, Brown 6-2, Carlisle 17-0, Dartmouth 6-0, Yale 4-0, *Pennsylvania* defeated Virginia 6-0, Ursinus 30-0, Bucknell 16-0, Villanova 11-0, Pennsylvania State 6-0, Brown 12-0, Lafayette 34-4, Michigan 29-0, Cornell 17-4. *Yale* defeated Wesleyan 16-0, Syracuse 5-0, Holy Cross 18-0, West Point 6-0, and Princeton 11-0, and was tied by Brown 10-10, and defeated by Harvard 0-4. *Dartmouth* defeated Vermont 11-0, Tufts 18-0, Holy Cross 18-5, Amherst 17-0, and Princeton 10-6, and was tied by Williams 0-0, and defeated by Harvard 0-6. *Carlisle* defeated Villanova 10-0, Pennsylvania State 12-5, Syracuse 12-0, Annapolis 16-6, and Saint Louis 17-0, and was tied by Pennsylvania 6-6, and defeated by Harvard 0-17 and by Minnesota 6-11. *Cornell* defeated Hamilton 11-0, Oberlin 23-10, Colgate 9-0, Vermont 9-0, Pennsylvania State 10-4, Amherst 6-0, and Trinity 20-6, and was tied by Chicago 6-6, and defeated by Pennsylvania 4-17. *Brown* defeated New Hampshire State 34-0, Bates 35-4, Colgate 6-0, Bowdoin 12-0, and Vermont 12-0, and tied Yale 10-15, and was defeated by Lafayette

6-8, by Harvard 2-6, and by Pennsylvania 0-12. *West Point* defeated Tufts 5-0, Trinity 33-0, Colgate 6-0, Villanova 25-0, and Annapolis 6-4, and was tied by Princeton 0-0, and by Washington and Jefferson 6-6, and was defeated by Yale 0-6. *Annapolis* defeated Rutgers 18-0, Dickinson 22-0, Lehigh 16-0, George Washington 17-0, Villanova 30-6, and Pennsylvania State 5-0, and tied Harvard 6-6, and was defeated by Carlisle 6-16, and by West Point 4-6. *Princeton* defeated Villanova 6-0, and Fordham 17-0, and tied Lafayette 0-0, Syracuse 0-0, and West Point 0-0, and was defeated by Dartmouth 6-10, and by Yale 6-11.

The University of Chicago made the best showing of the Western colleges, finishing the season without suffering a defeat. Other leading teams were Wisconsin, Illinois, Minnesota and Michigan. *Chicago* defeated Purdue 39-0, Indiana 29-6, Illinois 11-6, Minnesota 29-0, and Wisconsin 18-12, and tied Cornell 6-6. *Wisconsin* defeated Lawrence 35-0, Indiana 15-0, Marquette 9-6, and Minnesota 5-0, and was defeated by Chicago 12-18. *Illinois* defeated Indiana 10-0, Iowa 22-0, Purdue 15-5, and Northwestern 64-8, was tied by Marquette 6-6, and was defeated by Chicago 6-11. *Minnesota* defeated Lawrence 6-0, Ames 17-12, and Carlisle 11-6, and was tied by Nebraska 0-0, and was defeated by Wisconsin 0-5, and by Chicago 0-29. *Michigan* defeated Notre Dame 12-6, Vanderbilt 24-6, and Kentucky 62-0, and was defeated by Pennsylvania 0-29, and by Syracuse 4-28.

Virginia and Vanderbilt were the leading teams among the Southern colleges. Louisiana State University also made a good showing, going through the season without defeat, but did not meet such strong teams as the first-named colleges. Other prominent Southern teams were Tennessee, Sewanee, and Virginia Polytechnic.

FORAKER, JOSEPH BENSON. United States Senator (Republican), from Ohio. He was born near Rainsboro, Ohio, on July 5, 1846. In 1862 he joined the Union Army as a private in the Eighty-ninth Ohio Volunteer Infantry, in which he became first lieutenant, and later received the brevet of captain. He graduated at Cornell in 1869 and the same year was admitted to the bar. From 1879 to 1882 he was judge of the Supreme Court of Cincinnati, and from 1886 to 1889 served as Governor of Ohio. In 1896 he was elected United States Senator, and he was re-elected in 1902 for the term ending March 3, 1909. As a Senator he exhibited unusual knowledge of constitutional law and was regarded as one of the ablest of the Republican leaders. He consistently opposed many of the Roosevelt administration policies, notably railway rate regulation and the discharge of the negro soldiers, following the Brownsville affair in 1906. In 1908 he was a candidate for the Republican presidential nomination, but at the convention in June succeeded in mustering only sixteen votes. During the political campaign of 1908, Senator Foraker was charged by William R. Hearst with having accepted, while Senator, retaining fees from the Standard Oil Company. In substantiation of this charge Mr. Hearst publicly read several letters from John D. Archbold, vice-president of the Standard Oil Company, to Senator Foraker, some of which discussed pending legislation affecting the company, while others dealt with proposed political appointments and candidacies in which the Com-

pany was interested, and still others with which were enclosed certificates of deposits, in favor of Senator Foraker, for various sums ranging from \$5,000 to \$50,000. Senator Foraker issued several statements denying wrongdoing on his part. He finally withdrew from the contest for the nomination. See OHIO; PRESIDENTIAL CAMPAIGN.

FORDHAM UNIVERSITY. A Roman Catholic Institution of higher training in New York City, which existed from 1841 to 1905 as St. John's College, Fordham. In that year, following the opening of the Schools of Law and Medicine, it took its present title. The University had in 1908 six hundred and thirty students and one hundred instructors. Its library contained 60,000 volumes; the value of its property was \$1,500,000. The total number of students graduated since organization was 1,131. The president of the University is Rev. Daniel J. Quinn, S. J. The following officers preside over the respective departments: Rev. J. P. Quirk, S. J., Dean of Arts School; Paul Fuller, LL.D., Dean of Law School; Jas. J. Walsh, M.D. LL.D., Dean of School of Medicine.

FOREIGN MISSIONS, AMERICAN BOARD OF COMMISSIONERS FOR. An organization founded in 1810 by the Congregational Church and incorporated two years later. It is the oldest foreign missionary society in the United States. Its first missionaries were sent out in 1812 to India, and since that date the Board has commissioned 2,551 persons. There were in 1908 twenty-one missions, including 117 stations, and 1,474 out-stations in Africa, Turkey, India and Ceylon, China, Japan, Philippines, and Meconesia. The American missionaries number 594, and the churches under the auspices of the American Board number 554, with 71,137 communicants, of whom 6,407 were added during the year. There are 1,266 educational institutions of various grades, having 64,546 pupils. The native force of pastors, preachers, catechists, and teachers was more than seven times as numerous as the missionaries sent from America. The native communities contributed for Christian work two-thirds as much as the amount given by individuals and churches in America, or \$253,950. The receipts of the Board for the year were \$837,999.15, making the total receipts from the beginning \$38,580,264. The American Board is supported entirely by voluntary contributions. The president is Samuel L. Capen, LL. D.; and the secretaries are James L. Barton, D.D., Cornelius Patton, D.D.; editorial secretaries, E. E. Strong, D.D., and Rev. William E. Strong. The headquarters of the Board are at the Congregational House, Boston, Mass.

FOREST FIRES. See FORESTRY; CANADA, section on *History*.

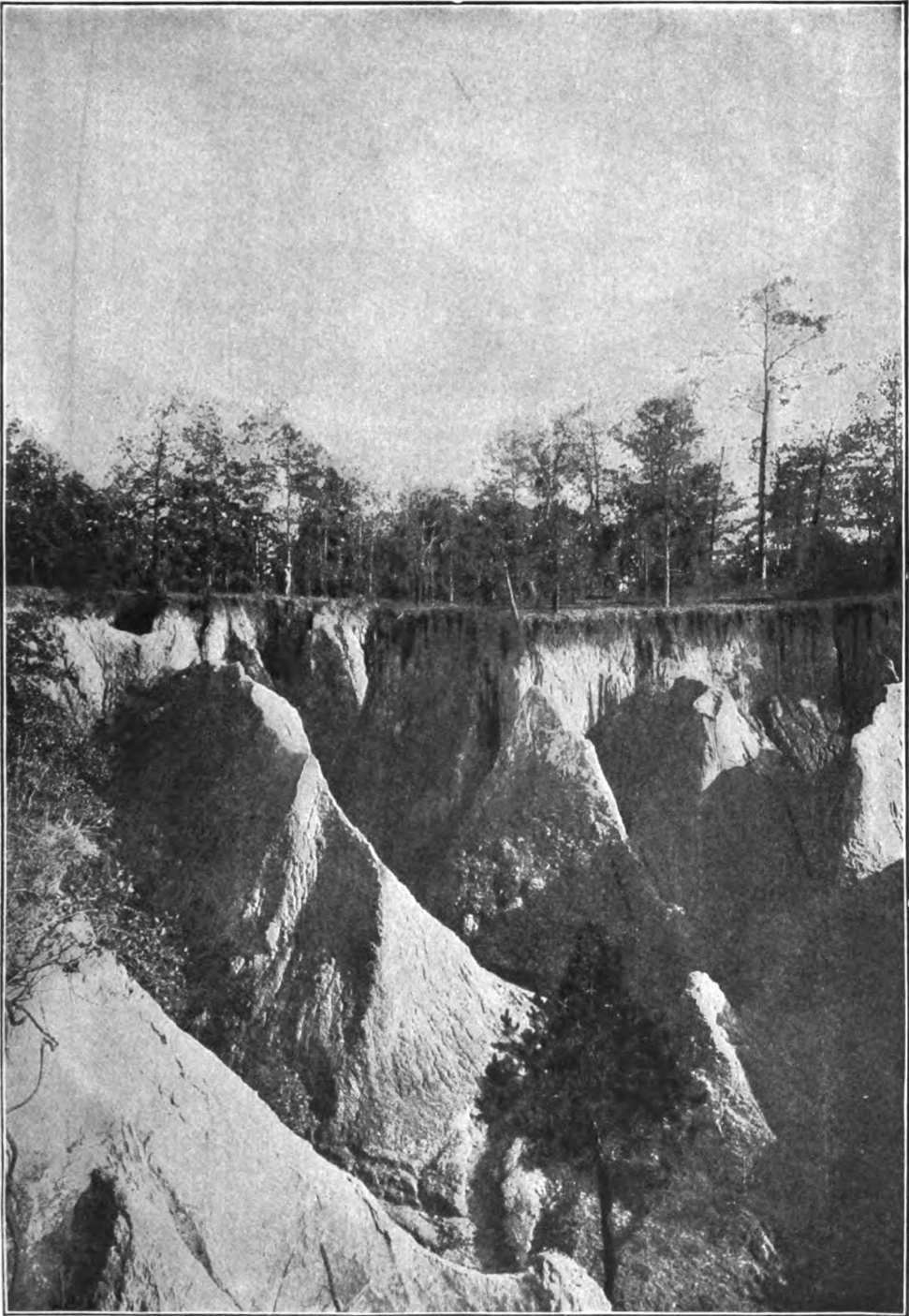
FORESTRY. Conservative forestry received a decided impetus in 1908 through the calling together, by President Roosevelt, of the governors of all the States to meet with a number of other prominent individuals in a conference at the White House in May to discuss the conservation of the natural resources of the country. Out of this meeting grew the National Conservation Commission. A second meeting was held in Washington in December, when attention was called to the rapidly waning timber supply of the United States. About four-fifths of the total wooded area in 1908 was in private

holdings and the timber was in more or less danger of immediate destruction. The National Forests embraced practically the remainder of the forests, and at the rate of cutting they would supply the lumber requirements of the country for about ten years. The consumption of timber in the United States in 1908 was three times the annual increment, and unless the destructive use of the forests soon ceased it was feared that a timber famine would surely follow. Some needed legislation looking to forest protection and conservation was secured during 1908, but much remained to be enacted.

Statistics collected by the United States Bureau of the Census and the Forest Service show that 28,850 mills reported a timber cut in 1907 of 40,256,154,000 ft. B. M. In addition there were cut 3,663,602,000 lath and 11,824,475,000 shingles. The mill value of the reported cut was \$707,095,409 and it was estimated that with complete statistics the value of the lumber, lath, and shingles cut in the United States during 1907 would approximate \$750,000,000. The leading States contributing to this output were Washington, with 9.4 per cent. of the total cut; Louisiana, 7.4 per cent; Texas, 5.5 per cent.; Mississippi, 5.2 per cent.; and Wisconsin, 5 per cent. These States were closely followed by Arkansas, Michigan, Pennsylvania, Minnesota, and Oregon, in the order named, these ten States furnishing practically 60 per cent. of the total cut of the country. The principal species of trees cut were yellow pine, Douglas fir, white pine, oak, and hemlock, in the order named. The exports of forest products for 1907 were valued at \$93,000,000, and the imports, which consisted mostly of wood pulp, cabinet woods, and rubber, amounted to \$122,000,000.

During the summer of 1908 severe droughts visited many portions of the country and forest fires were frequent and destructive, the estimated losses due to forest fires in 1908 being over \$50,000,000. The most serious of the fires were in Minnesota, Michigan, and Wisconsin, where, in addition to the forest areas burned over, the towns of Chisholm and Hibbing were destroyed. The losses from the forest fires between September 15 and September 30, 1908, have been estimated at over \$1,000,000 a day. Serious fire losses were also reported in New York, Pennsylvania, and Montana. The National Forests suffered relatively little loss due to fire. No data were available for 1908 at the end of the year, but in 1907 the timber destroyed in the forest reserves was valued at only \$31,590. The system of patrols established makes it possible to put out many incipient fires, over 1,200 of which were extinguished in 1907.

THE NATIONAL FOREST SERVICE. The activities of the Forest Service of the United States Department of Agriculture take quite a range and include the administration of the National Forests, national, State, corporate, and individual co-operative enterprises, and general and special investigations of forest problems. In all branches decided progress was reported for 1908. At the end of the fiscal year, June 30, 1908, there were 182 National Forests, embracing 167,975,606 acres, in nineteen States and Territories, including Alaska and Porto Rico, a net gain of 17,142,941 acres placed under conservative management during the year. Since that time numerous changes have been made in the boundaries of the reserves, and on December 31, 1908, they numbered 145 and embraced 168,681,-



From Special Report of the Secretary of Agriculture, in Relation to the Forests, Rivers, and Mountains of the Southern Appalachian Region

LAND EROSION NEAR MARION, N. C.

SHOWING RAPID REMOVAL OF THE SOILS BY HEAVY RAINS WHEN THE FOREST COVER IS REDUCED OR DESTROYED

039 acres. The latest to be set aside were the North Dakota, where 14,080 acres were reserved in the Bad Lands Region as an experiment station in forest planting, and the Ocala and Choctawhatchee, in Florida, together amounting to 674,891 acres. The latter are the only National Forests east of the Mississippi River. In pursuance of the policy that the forests are for use, the receipts from all sources for 1908 were \$1,842,281.87, derived as follows: Grazing, \$962,829.40; timber sales, \$849,027.24; special uses, \$30,425.23. Under the law 25 per cent. of these gross revenues go to the States in which the reserves are located for road and school purposes and the balance to the Federal Treasury. The expenditures on the National Forests during 1908 were \$3,118,267.21, or an excess of about \$1,200,000 over the receipts. This was due to the policy of declining permits for large sales and lower stumpage charges. In addition to privileges for which charges were made, the free use of timber valued at \$168,720 and a considerable amount of free pasturage were granted to settlers and others on or near the reserves, no charge being made or permit required for pasturing a limited number of stock. The executive and administrative force employed in connection with the National Forests on June 30, 1908, consisted of twenty-nine inspectors, ninety-eight supervisors, sixty-one deputy supervisors, forty-one assistants, 521 guards, and eighty-eight clerks. All the National Forests except the Luquilo, in Porto Rico, were under administration in 1908, the entire cost of protection and management being \$0.01856 per acre. In order more efficiently to administer the National Forests and to promote a much freer use of them, six inspection districts have been created with local headquarters in charge of a district forester, who decides all matters pertaining to use without reference to Washington. The locations of the headquarters are: Missoula, Mont., Denver, Colo., Albuquerque, N. Mex., Ogden, Utah, San Francisco, Cal., and Portland, Oreg. In addition to administering and protecting the forests, considerable work was being done in improving them, and in 1908 over 700,000 trees were planted in the National Forests in Nebraska, Kansas, Colorado, New Mexico, Arizona, Utah, Idaho, and California, and more than 2,200,000 seedlings were available for planting in the spring of 1909. Experiments were in progress in broadcast seed sowing in twenty-four of the government forests, to restock them. If successful, this method was to be extensively followed. Under authority from Congress a survey of the Southern Appalachian and White mountains was made and the Secretary of Agriculture recommended the purchase as National Forests of 5,000,000 acres in the Appalachians and 600,000 acres in the White Mountains.

FORESTRY IN THE PHILIPPINES. Next to the Forest Service, the most extensive official organization for forest administration connected with this government is that in the Philippines. Increased interest and revenues are reported in the report of the Director of the Bureau of Forestry, the revenue for 1907 being \$191,080.49 Philippine currency, an amount exceeding the expenses of the Bureau by about 45 per cent. According to an estimate made in 1908, fully one-half of the area of the islands was in forests. There were believed to be fully 25,000 square miles in forests that will yield 40,000,000 ft. B. M., only one-eighth of which was being

utilized. In May, 1908, there were thirty-one mills in operation in the Philippines with a daily output of about 250,000 ft. B. M. Much of this lumber is marketed in Manila, where it competes successfully with Oregon pine and California redwood. The stumpage charges of the Philippine government are from \$1.00 to \$5.00 gold per acre, and the lumber sells in Manila at from \$30 to \$150 gold per thousand feet, the latter price being paid for narra and other fine cabinet woods. The Bureau of Forestry of the Philippines was well organized, and besides the director there were nineteen trained foresters and assistants and twenty-three rangers, as well as draughtsmen, clerks, etc. Surveys were being rapidly made and every facility was offered for the use of the forests under the license system. Harry D. Everett, chief of the Division of Forest Administration of the Philippine Forest Service, was killed by natives on the Island of Negros, May 11, 1908.

PROGRESS IN STATE, MUNICIPAL, AND CORPORATE FORESTRY. In Alabama a State forest commission was organized, forest wardens were provided for, and provision made for a forest reserve fund. Taxes were reduced on small areas of re-forested land for a period of years, and co-operative work was begun in testing various timbers. The State forester of California was conducting extensive experiments with various species of eucalyptus as commercial trees, and had cleared fire lines about the redwood forests. A tract of 295 acres on Mt. Tamalpais has been deeded to the Government as a national monument to be known as Muir Woods. It contains an especially fine stand of redwood, and its perpetuity is assured. The preservative treatment of poles and railway ties was being tested at Los Angeles. Colorado, Kansas, and Nebraska, through State agencies, were doing a large amount of tree planting. In Connecticut more than 350,000 tree seedlings of various kinds were planted during the spring of 1908. A forest survey of the State was in progress, and advice was given by the State forester on the planting and care of private woodlands. In Delaware the State agricultural experiment station and the Federal Forest Service are co-operating in the development of a State forest policy. Georgia had a forestry association, and educational work was being fostered in the State University. In Hawaii forestry along protective lines was extensively practised and over 440,000 acres of territorial and private lands were set aside as forest reserves. Considerable progress was reported in the cutting of 5,000,000 ohia ties for one of the transcontinental railroads. The University of Illinois and the State Normal School at DeKalb established experimental plantations. The State Forest Commission of Indiana was making a survey of the forest resources of the State, carrying on tree planting operations on the State reserve, and promoting forestry in various ways. The Iowa Agricultural Experiment Station was doing considerable propaganda work and was giving attention to the improvement of woodlots, groves, etc. In Kentucky the State Board of Agriculture was investigating the forest resources of the State, and with the Forest Service was studying the timber supply of the eastern portion of the State. Maine developed her system of fire protection to a high degree of efficiency. Practical planting operations were conducted by the students of the State University. A State forest survey was

being made of Maryland and a system of reserves was being developed through private donations. The State forester of Massachusetts issued publications on various practical phases of forestry and aided land owners to convert their idle lands into woodlots. In Michigan the State forest reserve was being developed, extensive plantings were being made in several localities, and a number of individual land owners were preparing to convert their holdings into managed forests. A commission was appointed to report to the Legislature a forestry policy for the State. Considerable development work and planting was done in the Itasca State Park and in Pillsbury Reserve, in Minnesota. The governor recommended additional legislation pertaining to forestry, but without any great success. The Geological Survey of Mississippi and the National Forest Service were co-operating in a study of the forest conditions within the State, especially of the cut-over long-leaf pine lands. A forest survey of New Hampshire made available information regarding the forests. Dartmouth College was cutting about 1,000,000 board feet of lumber from a tract of 26,000 acres with care for reproduction. The boards having charge of the water supplies of Concord, Nashua, and Hanover are applying forest methods about their sources of supply, etc. New Jersey developed a forest policy, had a State forester, had about 11,000 acres in State reserves, and assisted the private owner in developing his holdings. New York owned 1,347,280 acres in the Adirondack and 92,708 acres in the Catskill reserves, and during the year 1908 purchased Mt. Marcy and a surrounding tract of heavily timbered land and added it to the Adirondack Reserve. The State maintained four forest nurseries in Franklin and Ulster counties and had in 1907 over 500,000 seedlings ready for planting. In Ohio a coöperative plan in tree planting was in effect between the forestry department of the agricultural experiment station and farmers in the State. Oregon organized a forestry commission and provided a system for fire protection through fire wardens. In Pennsylvania the State Department of Forestry had under management 780,000 acres of forests with options on 125,000 acres additional. Tree planting along public highways is provided and important changes in fire protection laws were enacted. The State of Vermont established at the agricultural experiment station a forest nursery from which seedlings for planting within the State were supplied at cost.

FORESTRY IN FOREIGN COUNTRIES. Canada was making marked progress in matters pertaining to her forests. Ontario added materially to the forest reserves and all the forested land in British Columbia, amounting to more than 150,000,000 acres, was placed in reserves by an act of the governor. Efforts were being made to preserve the small amount of forests in Ireland and provisions were made for reforesting large areas. A forest school at Avondale was to have charge of the planting under the Irish Department of Agriculture. It was reported that an Australian firm had secured a concession in Siberia for cutting 30,000,000 feet of timber annually for 10 years, the logs to be shipped to Melbourne for manufacturing into lumber. A royal commission that had been considering reforestation in Great Britain has unanimously reported a plan for the planting of nine million acres, 6,000,000 in

Scotland, 2,500,000 in England, and 500,000 in Ireland, at a cost of \$10,000,000. It is said that this area is available without encroaching on the purely agricultural lands. Great interest was aroused in the planting of rubber trees and other trees of economic importance throughout tropical regions generally, Hawaii alone planting more than 40,000 Ceara rubber trees during 1908 and the past two or three years immediately preceding. In Saxony in 1906 a revenue of \$2,126,037 was obtained from 443,105 acres of government forests. In Germany there were estimated to be 50,000 square miles adapted to forestry, and the annual wood cut is valued at \$60,000,000. The forests of Japan, including private, state, and communal holdings, were said to be about 50,000,000 acres. Japan had a comprehensive system of forest administrators, forest schools in connection with its universities, and a number of secondary ones in other parts of the islands.

FOREST SCHOOLS, ORGANIZATIONS, ETC., IN THE UNITED STATES. Post-graduate work in forestry was offered at Yale University, the University of Michigan, and at Harvard, two-year graduate courses being provided at each institution. A tract of 2,000 acres of forest land recently was given to Harvard as an adjunct to its forest instruction. Undergraduate instruction, varying from brief lecture courses to full four-year work, was offered in nearly all the agricultural colleges, and many other educational institutions, and in many States lectures in forest management are given in connection with the farmers' institute meetings. The Canadian Forestry Association held its ninth annual session in Montreal Mar. 12 and 13, 1908, with Hon. H. H. Price, of Quebec, as president. The Appalachian National Forest Association, the International Society of Arboriculture, and the Society of American Foresters are other associations of national scope. State organizations exist in a number of States, 33 such institutions being in active operation. State forest officers are provided for by 27 States and Territories.

A number of American books on forestry have been published during the year. Among them are *North American Trees*, N. L. Britton and J. A. Shafer; *Forest Trees of the Pacific Slope*, G. B. Sudworth; *Eucalyptus in California*, N. D. Ingham; *Handbook of the Trees of North America and Canada*, R. B. Hough; besides a considerable number of annual reports, bulletins, etc.

FORESTRY ASSOCIATION, AMERICAN An incorporated society, organized to combat the various destructive forces at work in the forest regions of the United States. The scope of this association was enlarged during 1908 so as to include other resources besides forests and the organization now stands for the conservation through rational development and use of all national resources. Beginning with January 1, 1907, the Association assumed the proprietorship and publication of the magazine *Forestry and Irrigation* as its official organ. On September 1, 1908, the title of the magazine was changed to *Conservation*. The membership of the Association is about 8000. The president is Hon. James Wilson, Secretary of Agriculture, and the Acting Secretary, Otto Lueberk, Colorado Building, Washington, D. C. See **FORESTRY**.

FORMOSA. (TAIWAN.) An island in the eastern Pacific, formerly Chinese, since 1895 a

possession of Japan. Area, 13,503 square miles; population (1908), 3,178,884 (1,667,871 male and 1,511,013 female). The natives still living outside the sphere of Japanese administration number about 110,000 and occupy 7,560 square miles. They are divided into about 730 large and small tribes, each occupying its own territory. The population of the principal cities at the end of 1906 was: Dai-Hoku (Tai-pei), the capital, 80,226; Dainan (Tainan), 52,401; Keelung, 16,846; Rokko (Lu-kong), 19,442; Kagi (Chia-i), 19,137; Shokwa (Chang-Hua), 15,584; Shinchiku (Hsin-Chu), 15,149; Gilan (Ilan), 14,793.

PRODUCTION. The mining industry is reported to be prospering. The mineral production in 1907 was as follows: Gold, 42,229 ounces, valued at 1,596,243 yen (1 yen equals 49.8 cents); gold dust, 1,328 ounces and 36,242 yen; silver, 17,136 ounces and 22,713 yen; copper, 47 tons and 28,912 yen; sulphur, 1,305 tons and 29,964 yen; coal, 134,186 tons and 461,390 yen; kerosene oil, 241,080 gallons and 58,401 yen. The Naruwo region, recently brought under Japanese control, is reported to be rich in gold and copper. The principal agricultural products are rice, tea, sweet potatoes, indigo, jute, ramie, opium, etc. Sugar is produced quite extensively. Formosa is, after Japan, the foremost camphor producing country in the world. The total export of camphor in 1907 was 4,121,566 pounds, of which 2,452,933 pounds went to Havre, London, and Hamburg, 1,635,300 to America, and 33,333 pounds to Madras. None of the camphor went to Japan, though 1,079,733 pounds was shipped from Keelung for transshipment at Kobe. The production of camphor by the government camphor monopoly was 5,388,918 pounds in 1907, against 4,040,838 in 1906. The contract for the export of camphor from Japan and Formosa had been held by a British firm until April, 1908. It was then discontinued, the Japanese government intending to enter the foreign markets either direct or through the agency of a Japanese firm. The production of camphor oil in 1907 was 6,710,390 pounds, against 3,610,645 pounds in 1906. Hitherto all the camphor oil was shipped to Kobe to be converted into refined camphor, but the budget of 1908 provided for the erection of a refinery at Dai-Hoku.

In 1908 irrigation works were started. Their construction was to extend over a period of 18 years and involve a cost of 30,000,000 yen. These works will be confined mainly to the plains in the western half of Formosa. It was estimated that with a proper system of irrigation the southern half of the western lowlands would be able to supply Japan with all the sugar it consumes, about 500,000 tons, or seven times the amount now produced on the island. It was also estimated that the productivity of the present rice fields would be increased by from 50 to 75 per cent., and that in addition 100,000 acres of land now unproductive could be converted into rice fields. The works were expected to pay for themselves, even during the period of construction, from water and land taxes and charges for electric power.

COMMERCE AND COMMUNICATIONS. The imports and exports of merchandise in 1907 amounted to 30,971,000 and 27,376,000 yen respectively. The imports are mainly textiles, metal goods, lumber, salt, tobacco, fruit, and

opium. The exports are mainly tea, rice, sugar, camphor, camphor oil, ramie, and jute. The trade with the principal countries of origin and destination in 1907 was as follows, in yen:

From and to	Imports	Exports
Japan.....	19,750,000	17,635,000
China.....	4,334,000	2,982,000
Hong Kong.....	208,000	2,082,000
Great Britain.....	1,757,000	504,000
United States.....	1,276,000	4,090,000

The trunk railway from Keelung, in the north, to Hakoko, in the south, 334 miles, was completed in May, 1908. Japan took over from China, in 1895, 62 miles of completed line. The Japanese programme of construction was laid down in 1899 and called for the completion of the railway in nine years at a cost of 28,800,000 yen. The actual cost was 3,800,000 yen below the estimates. The Formosa Sugar Refining Company had a concession for constructing 450 miles of branch lines, of which 90 miles were reported completed in August, 1908. The length of telegraph line is over 1100 miles.

FINANCE, ETC. The budget for 1908-9 balanced at 33,871,328 yen. The ten-year programme of public works, inaugurated in 1899, involved the expenditure of 28,800,000 yen on railways, 6,000,000 yen on repurchase of land rights, 2,000,000 for harbor construction, 3,000,000 for land surveys, and 1,200,000 on public buildings. The undertakings were carried out by floating bonds to the amount of 34,508,500 yen. By the middle of 1908 the volume of the bonds was reduced to 32,900,000 yen, a part having been paid off from the proceeds of the works. The Japanese garrison numbers about 12,000 men. The Governor-General in 1908 was Gen. S. Sakuma.

HISTORY. The campaign against the aborigines in the northeast of the island was continued in 1908. The force employed by the Japanese was 1086 constables and 4930 Aiyu—the latter being enlisted from among the natives. The Japanese lines of wire entanglements, 450 miles in length, were pushed forward, and towards the end of 1908 the aborigines were reported to have lost all their cultivated fields and to have been confined to the mountain regions. Being unable to obtain arms, ammunition, or salt, it was thought that they would soon have to submit. The annual cost of the campaign has been about 2,000,000 yen.

FORT, JOHN F. Governor of New Jersey. See NEW JERSEY.

FOUNDATIONS. Galvanized steel beams for grillages during 1908 formed the subject of experiments for the purpose of devising a protection against rust and corrosion, as such forms of foundation work are usually in concealed and wet places. Galvanizing the beams by the hot process after the shop work had been completed was found practical, and it was observed that the concrete adhered satisfactorily to the beams. Grillages built as experiments, and surrounded by concrete, showed, when broken open after six months, perfectly close and firm contact between the metal and the concrete. Steel sheet piling, was successfully used in sinking through quicksand, by the Pittsburg Plate Glass Co., at its plant in Crystal City, Mo. To lay the foundations, eight pits 22 feet by 26 feet, and about

40 feet deep were found necessary, clay being the material encountered except for a stratum of quicksand 20 feet below the surface. Sheet piling consisting of 15 inch steel channels, driven in 40 foot lengths, and locked together, were used and proved absolutely watertight.

FOWLER, CHARLES HENRY. An American clergyman, bishop of the Methodist Episcopal Church, died at his home in New York City, on Mar. 20, 1908. He was born in Burford, Ontario, Canada, on August 11, 1837, graduated at Genesee College (now Syracuse University) in 1859, studied law that year in Chicago (but never practiced), and two years afterward graduated at the Garrett Biblical Institute. He entered the Methodist Episcopal ministry in the Rock River (Illinois) Conference, in 1861, and for the ensuing twelve years held pastorates in Chicago. He was president of the Northwestern University in 1872-76, and editor of the *Christian Advocate* in 1876-80, when he became general missionary secretary of his church. In 1884 he was elected a bishop. He visited South America in 1885, and organized there an efficient missionary system; and in 1888, during a tour around the world, he founded the Pekin University, and the Nankin University, and established the first Methodist Episcopal church in St. Petersburg. He also had a part in founding the Nebraska Wesleyan University, at University Place, Neb., and the McClay College of Theology in Southern California. In 1898 he was fraternal delegate to the Wesleyan General Conference in England, and in the same year proposed the famous Twentieth Century Thank Offering of \$20,000,000, an amount which was actually raised by special subscriptions by the end of 1902, and thereafter was increased by another million dollars.

FRANCE. A republic of western Europe. Area, including Corsica and smaller islands, 207,129 square miles; population in 1906, 35,252,267, against 38,961,945 in 1901. In 1906 there were 306,487 marriages, 10,573 divorces, 806,847 births, and 780,196 deaths; in 1907, 314,903 marriages, 10,938 divorces, 773,969 births, and 793,889 deaths. The excess of births over deaths was 72,398 in 1901; 83,944 in 1902; 73,106 in 1903; 57,026 in 1904; 37,120 in 1905; 26,651 in 1906; and changed into a deficit of 19,920 in 1907. The tendency to a decrease is most marked in the southern departments. In 1907 there was an excess of births in 29 departments, against 42 in 1906 and 43 in 1905. These are mostly in the north, in Bretagne, on the eastern frontier, and Corsica. But in these also the excess is diminishing each successive year. In 1907 the birth rate per 1000 of population was 19.7, against 21.6 in 1906. The diminution in the birth rate is not due to a diminution of marriages. In 1898 the marriage rate was 7.6 per 1000 population; in 1906, 7.8; in 1907, 8.0. This marriage rate is not less than in other European states. The depopulation is due to the diminished fertility of marriages, the causes of which have been sought by statisticians and publicists for years. The *République Française* of Nov. 29, 1907, insists on the necessity of abolishing the law of equal division of inheritances, which has had the effect of restricting families at first to the two-child system, and now to the one-child system. Among the peasants particularly there is an intense aversion to the division of the land. The

newspaper recalls that fact that in 1815 Castle-reagh said that there was no need of fighting the French, for with their inheritance law they would become extinct in a hundred years. The Prussian *Statistische Korrespondenz*, in discussing the above proposal, doubts its remedial effect, for it may be too late to change by law the ingrained habit of equal division. In the first half of 1908 the births exceeded the deaths by 11,066, against an excess of 55,007 deaths in the first half of 1907. Births showed an increase of nearly 9,000, and deaths decreased about 58,000. The excess of births is thus mainly due to a decrease in deaths. The marriages numbered 162,495, against 154,081 in the first six months of 1907. The principal cities, with the population in 1906, are: Paris, the capital, 2,763,393; Marseilles, 517,498; Lyons, 472,114; Bordeaux, 251,947; Lille, 205,602; Toulouse, 149,438; St. Etienne, 146,788; Nice, 134,232; Nantes, 133,247; Havre, 132,430; Roubaix, 121,017.

EDUCATION. Primary education is free and compulsory from 6 to 13 years of age. By the law of July 8, 1904, all congregationist teaching is to be suppressed within ten years. Of infant, primary, and higher schools there were in 1905-6 in France and Algeria 67,845 public lay schools, with 112,465 teachers and 4,476,302 enrolled pupils; 11,240 private lay schools, with 28,853 teachers and 761,452 pupils; 600 public clerical schools, with 1,049 teachers and 51,662 pupils; and 2,252 private clerical schools, with 9,018 teachers and 277,466 pupils. In the evening courses of instruction for adults there were enrolled in 1906-7 about 718,000 pupils, but only 59,000 attended regularly. Popular lectures were attended by over 100,000 auditors. The number of primary normal schools was 83 for men, with 3,899 students, and 82 for women, with 5,169 students in 1906. For secondary instruction for boys there were in 1907 in France and Algeria, 339 public lyceums and colleges with 96,462 pupils, 273 private lay institutions with 21,248 pupils, and 336 private clerical institutions with 43,327 pupils; and for girls, 171 lyceums, colleges and courses, with 34,262 pupils. The higher educational institutions of the State, including universities and special schools, had in 1907 38,197 students, of whom 16,609 were in the University of Paris. There are also a number of private universities, mostly Catholic, the Free School of Political Science at Paris, and a considerable number of special and technical schools under the various ministries.

AGRICULTURE. The area and production of cereals in France in 1907 and 1908 are shown in the following:

	Area	Production
	<i>Acres.</i>	<i>Bushels*</i>
Wheat:		
1908 (preliminary)...	16,100,900	309,157,000
1907 (revised)	16,253,200	381,227,000
Rye:		
1908 (preliminary)...	3,083,300	51,294,000
1907 (revised)	3,064,300	56,463,000
Maslin:		
1908 (preliminary)...	362,000	6,768,000
1907 (revised)	356,400	7,053,000
Barley:		
1908 (preliminary)...	1,794,900	41,474,000
1907 (revised)	1,761,500	44,928,000
Oats:		
1908 (preliminary)...	9,586,700	332,335,000
1907 (revised)	9,565,300	352,715,000

* Bushels of weight: Wheat, 60 pounds; rye, 56 pounds; maslin, 58 pounds; barley, 48 pounds; oats, 32 pounds.

The area devoted to non-cereal crops in 1907 and 1908 is shown in the following:

Crop.	June 15, 1908	June 15, 1907
Potatoes	3,859,000	3,691,000
Sugar beets	539,000	544,000
Distillery beets	123,000	117,000
Fodder beets	1,546,000	1,534,000
Artificial meadows (clover, alfalfa, and sainfoin)	7,345,000	7,350,000
Temporary meadows (grasses in rotation)	711,000	574,000
Natural meadows	11,758,000	11,736,000
Annual fodder crops (vetches, peas, etc.)	1,677,000	1,563,000
Vineyards	4,349,000	4,384,000

The production of sugar beets in 1907-8 was 5,341,400 tons; in 1908-9, 5,800,600 tons.

The wine production of France in 1907 was 66,070,000 hectolitres (1 hectolitre = 26.418 U. S. gallons), against 52,079,000 hectolitres in 1906. The chief producing departments are the seven departments in the neighborhood of Marseilles the production of which is stated to have been in gallons as follows:

Department	1906	1907
Aude	113,862,192	221,469,127
Bouches du Rhône ..	23,620,604	35,658,373
Gard	58,870,102	114,863,134
Hérault	216,619,400	353,862,696
Pyrénées Orientales..	47,484,217	119,430,767
Var	35,612,134	46,330,212
Vaucluse	18,237,474	22,894,614

The yield per hectare varied from 1954 gallons in Hérault and Pyrénées Orientales down to 713 gallons in Vaucluse. Based upon prices realized by growers, the value of the 1907 crop was \$215,647,320, of which \$17,939,839 stands for 29,054,096 gallons of superior wines, and the remainder for 1,716,315,618 gallons of light wines. Partial reports for 1908 stated that in the champagne districts of Rheims, Epernay, and Châlons the crop proved a complete failure, owing to heavy rains in July and resulting mildew; in the Gironde, where the vintage amounted to 119,964,284 gallons in 1907, that of 1908 was reduced to 85,877,547, due to spring frosts and plant diseases, but owing to exceptionally fine weather during the period of vintage the classed growths of Médoc showed promise of excellent results; in Saône-et-Loire the vintage was estimated at between 1,700,000 and 2,000,000 hectolitres, against 1,400,000 in 1907—a substantial increase, contrasting with the heavy decline in the total yield of France, which was estimated at 55,030,000 hectolitres. In January, 1908, the stock of wine on hand from vintages earlier than 1907 was 219,159,706 gallons. The stock on hand of Bordeaux wines in the Gironde alone was at least 132,336,054 gallons on Nov. 1, 1908.

The serious disorders occurring in the wine districts of southern France in the summer of 1907 led to the adoption of more stringent laws against adulteration. The Ministry of Agriculture also caused an investigation to be made in regard to the causes of the wine crisis. The following are, in brief, the main features of the report submitted by Professor Daniel, of the University of Rennes. He traced the beginning of present troubles back to 1850, when American vines were introduced in the Midi, in order to

combat the ravages of the oidium fungus. The experiment was hailed as a great success, the principle that only allied varieties should be grafted was violated, the French vines were generally grafted on the hardier American stock, and the vineyards were "reconstituted." To add to the popularity of reconstitution it was found that the grafted vines were two and three times as prolific as the older vines. Soon, however, it was discovered that the new wine was inferior in quality to the old product, and moreover would not keep so well. Formerly the merchants would buy up all the wine in seasons of plenty and store the surplus above immediate needs in their cellars, where age improved its quality and added to its value. Now this was no longer possible; the wine had to be marketed soon, and in seasons of plenty, it could not be sold at remunerative prices. At the same time, the consumption of the ordinary wines had greatly decreased, partly due to the making in seasons of scarcity of artificial wines from dried raisins, sugar, and other ingredients, some of which were unwholesome, if not actually poisonous. As a result there was in recent years, and particularly in 1907, a glut of wine in Southern France. Professor Daniel urged as a radical remedy, the digging up of the reconstituted vineyards and the replanting of them with native stock. In the opinion of the French internal revenue departments, the crisis of 1907 was not due to a general overproduction but to local and temporary overproduction.

The production of cider in 1907 was 3,360,219 hectolitres, about 88,766,885 gallons, against 22,301,597 hectolitres in 1906. This was the lowest figure ever recorded, with the exception of 1871. The average annual cider production for the decade 1897-1906 was 430,275,000 gallons. The production of olives in 1906-7 was 89,768 tons, against 85,182 tons in 1905-6; of olive oil (estimated), 10,772 and 10,222 tons. At the end of 1905 the numbers of farm animals were: Cattle, 14,315,552; horses, 3,169,224; asses, 365,181; mules, 198,865; pigs, 7,558,779; sheep-17,783,209; goats, 1,476,957.

FORESTRY. About 8,400,000 hectares (1 hectare = 2.47 acres) are under forests. The State forests are under scientific control. Private cleared lands, such as summits and mountain sides, dunes and moors, if replanted with trees, are exempt from taxation during 30 years. All other lands replanted are exempt to the extent of three-fourths of the ordinary tax for a like period. The uprooting of trees and the clearing of wooded lands require the assent of the sub-prefects, who may deny the application if the preservation of the woods is necessary for the maintenance of the soil upon mountains and slopes, for the defense of the soil against erosion and rivers, for the existence of springs and watercourses, for the defense of the national territory in the frontier zone, and for the public health.

MINING AND METALS. The production of pit-coal and anthracite in 1907 was 36,168,389 tons, a gain of 2,710,549 tons over 1906; of lignite, 761,861 tons. The production of ores in 1906 was as follows: iron, 8,481,823 tons; lead and silver, 11,795; zinc, 53,466; copper, 2,547; antimony, 18,567; arsenic, 6,534; manganese, 11,189; salt, 1,335,420. The output of the quarries in 1906, including building stone, slate, cement, phosphates, etc., was valued at 238,814,000 francs. In 1906 there were in operation 60 smelting works, with 122 blast furnaces. On

Dec. 31, 1908 there were 107 furnaces in blast in France as compared with 111 on Dec. 31, 1907. In 1907 the production of pig iron was 3,606,288 tons, against 3,314,162 in 1906; worked mild steel, including rails, merchant steel plates, forgings, and moldings, 1,554,786 tons, against 1,683,567 in 1906; steel ingots, 2,653,613 tons, against 2,371,377 in 1906; steel blooms and billets, 1,374,479 tons, against 1,052,167 in 1906; wrought iron and steel, including merchant iron and steel obtained by puddling, charcoal process and reheating, and sheets, 687,249 tons, against 747,963 in 1906. The export of bauxite, mainly from the neighborhood of Marseilles, amounted in 1907 to 110,915 tons. In 1908 there was found near Bétune, Pas-de-Calais, petroleum which on analysis was found superior in carbides and naphtha to the best Russian product.

MANUFACTURES. In 1908 there were in France 6,731,316 cotton spinning spindles, which consumed during the year ending Aug. 31, 1908, 950,259 bales of cotton (740,512 American, 127,356 East Indian, 58,495 Egyptian). The consumption of wool in 1907 was estimated at 137,000,000 pounds, about 40 per cent. of the domestic product being exported. In 1906-7 there were 273 sugar factories, employing 36,615 men, 2,078 women, and 1,370 children. The output of refined sugar in 1906-7 was 682,851 tons; in 1907-8, 704,100 tons; in 1908-9, 746,500 tons. The alcohol production in 1906 was 2,709,831 hectolitres; in 1907, 2,514,810 hectolitres. The number of ships built in 1907 was 52, of 113,345 tons. The shipbuilding on hand on Sept. 30, 1908, was 44,803 gross tons, against 107,955 on the same date in 1907.

FOREIGN COMMERCE. The general imports and exports of France in 1907 amounted to 7,574,600,000 and 7,256,100,000 francs respectively. In the special trade (imports for consumption and exports of domestic produce) imports of merchandise amounted to 6,047,648,000 francs and exports of merchandise 5,542,030,000 francs, against 5,627,200,000 and 5,265,500,000 respectively in 1906. The special imports and exports of merchandise by great classes were in 1907 as follows, in francs:

	Imports	Exports
Food products.....	1,001,887,000	749,280,000
Raw materials.....	3,878,446,000	1,532,010,000
Manufactures.....	1,167,315,000	2,852,387,000
Postal parcels.....		408,353,000

The principal imports (special trade) in 1907 were (add 000): Cattle, 78,500 francs; butter and cheese, 65,305; coal and coke, 429,104; raw coffee, 103,602; copper, 155,357; raw cotton, 440,686; cotton yarn, 25,984; cotton manufactures, 67,151; fish, 59,500; raw flax, hemp, and jute, 179,800; fresh and preserved fruits, 42,162; oleaginous fruits and seeds, 272,793; grain and grain products, 225,110; hides and skins, 153,058; tanned or curried hides, 50,900; machinery, 224,240; nitrate of soda, 69,138; petroleum and vegetable oils, 149,707; raw silk, 441,500; silk manufactures, 56,176; timber, 183,520; wine, 104,354; raw wool, 580,390; woolen yarn, 9,941; woolen manufactures, 44,220. The principal exports of domestic produce in 1907 were, in 1000 francs: Apparel, 150,378 francs; brandy and other spirits, 46,127; butter and cheese, 69,889; chemicals, 132,548; copper, 43,200; raw cotton, 67,497; cot-

ton manufactures, 352,209; earthenware and glassware, 89,052; fruit, 50,071; haberdashery, small fancy ware, toys, etc., 264,700; grain and flour, 21,000; hides and skins, 122,409; tanned hides and skins, 106,373; leatherware, 75,734; machinery, 93,970; metal wares and tools, 118,800; millinery, 158,781; paper and manufactures thereof, 83,155; raw silk, 197,349; silk manufactures, 355,581; raw sugar, 42,856; refined sugar, 50,671; wine, 228,025; timber, 67,693; raw wool, 266,242; woolen yarn, 70,149; woolen manufactures, 245,503. The special trade with some of the principal countries of origin and destination in 1907 was as follows, in francs:

From and to—	Imports	Exports
Great Britain.....	883,200,000	1,368,800,000
Australasia	179,000,000	8,100,000
Canada	6,334,000	13,381,000
Algeria	290,600,000	392,700,000
Belgium	426,600,000	860,900,000
Germany	638,200,000	649,700,000
Switzerland	117,200,000	351,600,000
United States.....	670,900,000	395,500,000
Spain*	171,200,000	131,000,000
Switzerland*	109,500,000	308,800,000
Italy*	181,900,000	247,100,000
Russia*	302,900,000	66,900,000
Turkey*	115,000,000	59,100,000
Austria-Hungary*	76,700,000	36,700,000

* 1906

During the first ten months of 1908 the imports were reported to have declined about 2 per cent. and the exports about 7 per cent., as compared with the same period in 1907.

The gold and silver movement in France, 11 months ended Nov. 30, was as follows:

	Imports	Exports	Excess
Gold	Fr. 885,968,000	Fr. 22,464,000	Imp. Fr. 863,504,000
1907	416,334,000	142,458,000	Imp. 273,876,000
Silver	156,509,000	160,465,000	Exp. 3,956,000
1907	161,723,000	191,436,000	Exp. 29,713,000

Attention was generally attracted to the large amounts of gold that were being acquired by France, and its effect on the political and banking situation was widely discussed.

COMMUNICATIONS. The tonnage entered in the foreign commerce in 1906 was 24,470,964 (6,029,274 French), and that cleared, 24,603,504 (6,132,521 French). The merchant marine on Jan. 1, 1907, consisted of 15,488 sailing vessels, of 877,055 tons, and 1,611 steamers of 723,487 tons. The railways in operation on Dec. 31, 1907, aggregated 24,997 miles of principal lines and 4,851 miles of local lines. The French and Spanish governments have made arrangements for the construction of a Trans-Pyrenean line, which will greatly reduce the distance of travel between the two countries. The length of telegraph lines in 1906 was 114,679 miles. Letter-telegrams, transmitted at low rates during the night hours, were introduced on Dec. 7, 1908.

GOVERNMENT. The President in 1908 was Armand Fallières, whose term is Feb. 18, 1906-1913. The Cabinet in 1908 was as follows: Premier and Minister of Interior, G. B. E. Clémenceau; Justice and Worship, A. Briand; Foreign Affairs, Stephen Pichon; Finance, M. Caillaux; War, Gen. Picquart; Marine, A. Picard; Public Instruction and Fine Arts, G. Doumergue; Public Works, Posts, and Telegraphs, L.

Barthou; Commerce and Industry, J. Cruppi; Agriculture, M. Ruau; Colonies, M. Milles-Lacroix; Labor and Social Provision, R. Viviani.

FINANCE. The general budget for 1908 estimated the revenue at 3,908,460,516 francs, and the expenditure at 3,910,283,358; the special budget balanced at 158,735,975 francs. The principal estimates of revenue were: Direct taxes, 561,655,716; registration, 613,217,900; stamps, 210,619,700; customs, 481,465,000; taxes on beverages, 432,776,400; sugar, 155,204,000; tobacco, match, and gunpowder monopolies, 516,192,600; posts, telegraphs, and telephones, 349,665,200; domains and forests, 59,106,882. The principal estimates of expenditure were: Public debt, 1,262,523,153; war, 779,875,128; navy, 319,932,722; public instruction, 290,417,044; colonies, 98,269,689; public works, posts, and telegraphs, 245,557,373; cost of collection of taxes and administration of monopolies, posts, telegraphs, state domains, etc., 534,018,767. The consolidated public debt stood on Jan. 1, 1908, at 29,058,824,704 francs; the floating debt, at 1,102,894,400 francs.

ARMY. The French army consists of two parts, the Metropolitan army and the Colonial army. Military service is obligatory and universal for all citizens between the ages of 20 and 45 years, the only exceptions being those for physical disability. The period of active service in the first line is two years, followed by eleven years in the reserve, six years in the territorial army, and finally by six years in the reserve of the territorial army. The organizations of the Metropolitan army comprise 163 regiments of infantry and 30 battalions of chasseurs à pied; 79 regiments of cavalry (13 cuirassier, 31 dragoons, 21 chasseurs à cheval, and 14 hussar); 40 regiments of field artillery; 14 batteries of mountain artillery; and 16 battalions of garrison artillery; 6 regiments of engineers and a railway regiment. There are 20 army corps in the active army; and in addition there are 36 divisions of Reserve troops; 36 divisions of Territorial troops; 38 battalions of military Customs Corps; about 22,000 Gendarmerie, about one-half of whom are mounted, and the Garde Republicaine of about 3,000 men, similar to the Gendarmerie but doing duty in Paris. The Colonial army, formed by voluntary enlistment or voluntary transfer from the Metropolitan army, consists of 12 regiments of infantry and 3 regiments of artillery permanently stationed in France during peace; and 8 regiments, and 3 independent battalions of infantry, 4 mixed regiments (field, mountain and garrison), 1 division field batteries, and 1 battalion garrison artillery, with stations abroad. There are also a number of native corps of which the most important are the 20 battalions of Annamite and Tonkinese, and the 15 battalions of Senegalese Tirailleurs.

The total authorized strength of the active Metropolitan army in 1908 was 576,779 of all ranks, to which must be added 27,580 of all ranks for that part of the Colonial army stationed in France. The field army is estimated at 1,290,000 combatants, while depot troops, all fully trained, number about 626,000, and there are available about 700,000 additional (*ersatz*) men to make good losses in the field. This gives an aggregate of 2,616,000 trained men available in time of war.

The French infantry is armed with the Lebel magazine rifle; the cavalry with the Lebel car-

bine; and the field artillery with the Model 97 shielded rapid fire gun. The field artillery was increased in 1908 so as to have 120 guns to each army corps instead of only 96 as formerly. The field gun was much improved by increasing the powder charge, reducing the length of the bore, and making the shield larger and lighter, thereby decreasing the weight. Each infantry battalion and cavalry brigade was provided with two machine gun detachments. Experiments were conducted with an automatic rifle which promised great success. Experiments were also carried on with motor vehicles for transportation purposes, with the result that light motor trains are considered to have 20 times the efficiency (carrying 5 times the weight to 4 times the distance) of horse drawn trains. The cost of the army per head of population is about \$4.25 per year, being higher than that of Germany, (about \$2.50) or Great Britain (about \$3.50). The discipline and training of the army is said to have reached a higher degree of efficiency in 1908 than ever before in its history.

NAVY. At the beginning of 1908 the effective navy consisted of 22 first-class battleships aggregating 253,880 tons; 10 second-class battleships, 74,210 tons; 6 armored gunboats, 9300 tons; 21 armored cruisers, 193,760 tons; 4 protected large cruisers, 30,100 tons; 21 protected small cruisers, 67,820 tons; 7 gunboats, 2096 tons; 72 destroyers, 27,547 tons; 246 torpedo boats, 24,705 tons; total, 409 ships, of 683,473 tons, besides 48 submarines, and 5 convertible cruisers ranging from 8300 to 15,000 tons. There was in 1907 a decrease of 48,462 tons, due to the loss of the battleship *Jéna* and the striking off the list of some old cruisers. The crews numbered 58,600. There were under construction 7 battleships, 125,000 tons, and 4 armored cruisers, 54,200 tons, besides minor craft.

The year 1908 was an unhappy year for the French Navy. Magazine and boiler explosions, wrecks, submarine tragedies, gunnery accidents were leading events of the history of the few years previous. Three serious gunnery accidents had taken place on the *Couronne*, all attended with loss of life, on April 20th, 1906, Aug. 2d, 1907, and Aug. 12th, 1908; and one on the *Latouche-Tréville* on Sept. 22nd, 1908. Naval officers complained that the guns were badly designed, and were ill adapted to rapid loading; that the powder lacked stability; and that the ammunition was very defective. There was no uniformity in the projectiles; and charges were very carelessly put up. All guns in service, and being built, were designed for "B" powder; and all guns were designed and built by the Colonial Artillery. It was claimed however that "B" and "AM" powders were ballistically the best in the world. Criticism of the French Navy revealed the fact that auxiliaries were lacking in the way of scouts, repair, depot, and mining ships. There was a permanent shortage in personnel; most battleships were half manned; and, in case of emergency, not more than three out of the nine coast guard ships at Cherbourg could be sent to sea. Ammunition and stores of all sorts were deemed insufficient for war purposes; and neither Toulon nor Brest possessed adequate docking facilities.

M. G. Thomson, Minister of Marine, resigned Oct. 19th (see below *History*), after a vote in the French Chamber of Deputies deploring the negligence in the Navy Department, as indicated by the *Jéna* and subsequent disasters. M. Pi-

card, his successor, declared, in November, that France must regulate her armament by that of Germany, and not by that of England; that a new battleship programme would soon be submitted to the Chamber, providing for the laying down of two or three battleships a year. He promised to hasten construction work. The refrigeration of battleship magazines was occupying his attention. He intended renewing the material in the dockyards; simplifying and decentralizing administration as much as possible; and increasing the cohesion among the various departments.

Bizerta, as an advanced naval base, was being used by the fleet for docking, repairing, coaling, and filling up with stores and ammunition. Much attention was beginning to be given to gunnery, on account of American and British records. At battle practice by the Brest cruiser squadron against the target ship *Tonnerre*, from 30 to 33 per cent. of hits was made at from 6000 to 4000 metres. The battle practice for large calibre guns took place in the Mediterranean against the Liserot rock; 40 to 57 per cent. of hits was made by the battleships of the Mediterranean fleet.

HISTORY.

PARLIAMENT AND THE MINISTRY. Changes took place in the ministry early in the year, owing to the death of M. Guyot Dessaigne, Minister of Justice. His place was taken by M. Briand, who retained the Ministry of Public Worship, but transferred the Ministry of Public Instruction to M. Doumergue, whose place as Minister of Commerce was taken by M. Cruppi, Vice-President of the Chamber. Parliament re-assembled on Jan. 14, after the Christmas holidays. Among the measures before it the following may be mentioned, and the more important of them will be discussed in succeeding paragraphs: The Church Property or "Devolution" Bill; the Income Tax Bill; old age pensions; the budget; the Army Bill; bills for the protection of art treasures, especially in churches; for the formation of an extraordinary commission to draw up a plan of naval reorganization; for an appropriation for the improvement of the port of Havre and the estuary of the Seine; for amnesty to offenders in the wine growing uprising in 1907; for changing judicial separation into divorce after three years on the application of either party; and for the purchase of the Western Railway. Of these the Army Bill, the Devolution Bill, the measures providing for the budget, for the protection of art treasures, for the commission on naval reorganization, for the improvement of the port of Havre and the Seine estuary, for the Franco-British exhibition, for the amnesty to the wine growers, and for the purchase of the Western Railway were passed. The Church Property Bill amended the Separation Law by giving only to direct heirs the right of legal action for recovery of property bequeathed to the Church. It was carried after a debate which lasted six weeks in the Chamber, but was so amended as to permit property bequeathed for the purpose of paying for masses for the dead to be used for that purpose. It was designed to prevent the embarrassment of the government by law suits brought against the departments and communes, as had been threatened by the Clericals. The Army Law reduced the time of training for the reservists to two periods, one of 23 days and the

other of 17 days, and for the territorial troops to one week. An attempt had been made to carry an amendment to the amnesty measure, extending amnesty to the insubordinate civil servants, the anti-militarists and the anti-patriots, but this was firmly opposed by the ministry and rejected by a majority of 460 to 73.

THE INCOME TAX BILL. The debate on the Income Tax Bill began Jan. 20, but though some of the chief articles were passed, an agreement on it could not be reached, and final action was deferred. It encountered serious opposition, not only in Parliament, but in the country. In the latter part of March a meeting of protest was held at the instance of the Agricultural and Industrial Association which was said to represent a million and a half French taxpayers. The meeting denounced the present measure, and proposed as an alternative a gradual reform of the system of taxation, the reduction of the land taxes and the making up of the revenue by the taxation of foreign securities. Among other objections two serious defects were alleged against it. In the first place, it added to the taxes on the different sources of revenue this supplementary and all inclusive tax; and in the second place, it did not provide an effective means of assessment. On this latter point it was argued that the government must either be left to the mercy of the false statements of individuals as to their income, or it must resort to inquisitorial methods. It was pointed out that the tax would exempt from 9,500,000 to 10,000,000 persons, and that in taxing progressively incomes of from 5000 francs upward, it discriminated against the well-to-do, confiscated individual fortunes, and was in fact an instance of class legislation. Some favored in place of it a combination of the Italian and British income tax systems, while others proposed a reform of the existing system. It was generally admitted that the present methods of taxation were in urgent need of reform.

THE OLD AGE PENSIONS BILL. The two houses of Parliament disagreed on the Old Age Pensions Bill, which had been voted on by the Chamber of Deputies in 1906. In March, 1908, the Chamber, by a vote of 474 to 66, adopted a resolution calling on the government to obtain from the Senate a favorable vote on the measure. In June, M. Clémenceau, the Premier, sent a note to the Senate Commission which had the matter in charge, suggesting the age of sixty-five for the beginning of the pensions, the inclusion of farm hands and domestics among those entitled to pensions, and the provision that the pensions should not fall below 350 francs, or when combined with income received from other sources exceed a total of 600 francs for the first fifteen years after the bill became a law, and a total of 800 francs for the next fifteen years. No solution had been reached at the close of the year. The measure, like the income tax proposal of the government, encountered severe criticism from the opposition. Among the arguments brought against it were that it did not provide for any coöperation on the part of the recipients of the pensions in the shape of compulsory saving. The non-Socialist Republicans objected to it especially on this ground, fearing a tendency to pauperize the working classes. They declared that the example of England was not applicable, since already in France the law providing for assistance to the aged, infirm, and incurable,

based on the principle of obligation, had imposed a charge of 100,000,000 francs a year on the budget of the state and of the commune. For the most part the arguments took the familiar lines, that the measure was socialistic and that it tended to discourage individual thrift and industry. Some recommended as an alternative the Belgian system, whereby the state contributes to societies of mutual aid already in existence, apportioning the subsidies according to the importance of the work done by these societies. The Belgian law is merely permissive and not compulsory.

THE PURCHASE OF THE WESTERN RAILWAY. The question of the purchase of the Western Railway, for which a bill was introduced in Parliament, was long debated. The debate closed on June 25, and the bill was passed in the Chamber, but encountered serious opposition in the Senate, partly on the ground that the money was needed for the old age pension scheme, and partly from alleged vices of the measure itself. The government, however, received in the final division a majority of 37, and the bill became a law on July 12. A bill was then introduced by the Minister of Public Works, sanctioning provisional arrangements for the running of the road till the government could assume its management in 1909, and was passed by the Chamber. The government was accused by the opposition of having brought undue pressure to bear on the Senate, in order to secure the passage of this measure. Many favored the alternative proposed by M. Ch. Prevet in the Senate, namely, a reorganization and an exchange of lines between the state system and the Western and Orleans Railways, to insure greater uniformity and coherence, and further railway development. The purchase was criticised by the opposition as an unwise and dangerous step, likely to lead to bad management of the road.

ECHOES OF THE DREYFUS AFFAIR. In February a monument was unveiled in memory of M. Scheurer-Kestner, who was one of Dreyfus's earliest advocates, and as vice-president of the Senate, had successfully exerted himself to bring about the reopening of the Dreyfus case. Premier Clémenceau, who delivered the principal speech of the day, warmly praised the courage of men like Scheurer-Kestner, who dared to be loyal to the truth, in the face of bitter partisanship, and hostile public opinion. The cause for which Scheurer-Kestner had fought was now completely triumphant, declared M. Clémenceau. On March 10, the Chamber voted the restoration of Joseph Reinach, a prominent Dreyfusard, to his rank as captain in the army. Other officers of the reserves and of the territorial forces who had been cashiered for similar reasons were also restored. On Mar. 19, an appropriation was voted for the removal of Emile Zola's ashes to the Panthéon, after a discussion, in the course of which M. Barrès attacked Zola as a traducer of the national honor, notably on his novel of the Franco-German war, *Débâcle*, and M. Jaurès pronounced a panegyric on him. The transfer of the ashes was accomplished on April 2, without any disturbance in the streets, owing, perhaps, to the quiet and almost secret manner in which it took place. Ceremonies were held in the Panthéon on June 4, and attended by the President and Cabinet, and many prominent persons, including Dreyfus. At their close, a journalist named Gregori attempted to assassinate

Dreyfus, but succeeded in only slightly wounding him. The trial of Gregori took place in September, and among the spectators were many Dreyfusards and anti-Dreyfusards. The president of the court ruled that no discussion of the guilt or innocence of Dreyfus would be permitted. Nevertheless, the passions which the famous case had aroused were stirred again by the speeches of the prisoner and his counsel. The prisoner declared that he had fired his shot as a protest against the impudent act of the government in placing the ashes of Zola in the Panthéon, and because this public demonstration was an abuse of the good faith of the country. Gregori's counsel made a violent speech against the Republican administration, in the course of which all the bitterness of extreme anti-Dreyfusism came out. The jury declared Gregori not guilty either of homicide or of deliberate wounding. The act was apparently regarded as belonging to the class of *crimes passionnels*, toward which French juries are apt to be lenient. The excitement over the affair soon quieted down. On the reassembling of Parliament in October, one of the deputies brought up the question of the attacks on the Court of Cassation, for the decision which had been handed down in the Dreyfus case in 1906, and M. Briand, Minister of Justice, pointed out the folly of these attacks and their evident attempt to revive the affair. M. Biétry, having used violent language and refused to withdraw it, was subjected to a vote of censure and temporary exclusion from the Chamber.

TROUBLE WITH THE TRADE UNIONS. On the occasion of a strike among the glass workers of Draveil, the gendarmes were attacked and opened fire, killing one striker and wounding ten workmen. Four of the gendarmes were wounded. Thereupon the General Confederation of Labor in a public announcement characterized it as another crime of the Clémenceau Ministry, and called a meeting on June 6. At this meeting, after speeches were made by several officers of the General Federation of Labor, a general strike was ordered for twenty-four hours, as a protest against the Draveil affair. At the end of the meeting there was some rioting, in the course of which thirteen persons were wounded. In the Chamber the Socialists moved a vote of censure, but it was defeated. (For a discussion of the relation between revolutionary trade unionism and socialism, see the article on **SOCIALISM**.) On July 27, the Federation of Building Trades declared a twenty-four hour general strike on account of the Draveil affair. On July 30, many strikers went to Draveil, and conflicts with the troops took place in the streets of Villeneuve, Saint Georges, and on the railway line, in the course of which sixty strikers and a number of soldiers were wounded and three strikers killed. It was thought that this outbreak was too serious to come spontaneously from the workmen as a mere protest against the killing of one member of their class at Draveil, and it was alleged that it would not have occurred except for the instigation of the General Confederation of Labor, against which accordingly feeling ran very high, all the bourgeois parties uniting against them. After a revolutionary proclamation by the committee of the Confederation, the government arrested eight of the principal agitators; and the Association of Trade Unions of the Seine was excluded from the Paris Labor Exchange. The Confederation immediately

elected new officers and decreed a strike of twenty-four hours for Aug. 3, but only a few of the trades responded, and the strike was practically a failure. The Socialist deputies tried to secure a petition calling for the assembling of the Chamber, but could get no signatures. M. Jaurès, in his paper, *L'Humanité*, pointed out that the trade unions had by no means reached the point of organization which rendered a general strike possible. The German Socialist paper, *Vorwaerts* remarked that the lesson of the recent affair was that in France, the Socialist party was evidently not regarded by a large part of the workmen as representing in any sense the wishes of the proletariat and that the French laboring class was generally distrustful of Socialism, particularly of the Parliamentary Socialism, as manifested in recent years.

The defiant attitude of the General Confederation of Labor added apparently to its popularity among the working classes. It recruited its number rapidly, and the recruits included even the government workmen from the Custom House, the match works and the arsenals. The Post Office clerks were also inclined towards an affiliation with the General Confederation. The large and important Federation of Miners, which had not affiliated with the Confederation hitherto, was admitted on Aug. 4. A number of agricultural laborers also joined. See TRADE UNIONS.

ATTACKS ON THE LABOR POLICY. The course of the government was sharply criticised by the opposition for weakness and for the disparity between its words and its deeds. Many of the Radicals and most of the Republicans favored the suppression of the Confederation. On the other hand, M. Jaurès declared that the reason for the failure of the strike was that the Confederation was not strong enough. The Republicans argued that the Confederation having constantly violated the law of 1884, which required that trade unions should embrace only similar occupations, and having repeatedly broken the fundamental laws of society, ought to be dissolved. The government was condemned for not enforcing its dissolution, and also for failing to put through the measure that had been brought up in Parliament forbidding the government workmen to join trade unions. Speeches from members of the ministry had expressed the right principles, said the Republicans, but their acts had not conformed to their words. The government was between two fires. On the one side, it was denounced by Socialists and trade unionists as murderous and tyrannical, and on the other was condemned for undue leniency.

On April 6, in the Chamber of Deputies, M. Clémenceau answered the criticism of M. Jaurès as to the general policy of the government, and especially its attitude towards the working classes. He declared that the government's programme looked to the organization of the democracy, and that while he favored the rights of the working classes, he deprecated all resorts to violence, and he retorted with some sharp criticism of the Socialists. The matter came up again in the Chamber on Oct. 23, when M. Deschaud spoke on his interpellation as to revolutionary trade unionism, which he criticised as a means of preventing any real organization of labor, and not as a means of improving the workman's condition. He asked the opinion of the government on this subject. After a brief interpellation by another member, asking what measures the government had taken against the

anarchistic agitation of the General Confederation of Labor, M. Viviani, Minister of Labor, replied, condemning in substance the course taken by the Confederation. He remarked, however, that a small minority were now in control of that organization, and that the reform element in it had already shown signs of activity. He explained the social, political and legal grounds of the government's objection to dissolving the Confederation, and declared that conciliation was preferable to that course. He suggested the establishment of collective contracts and of councils of labor and arbitration; and he appealed to the bourgeois classes to assist in the education of the proletariat. The Chamber approved the government's position by a vote of 324 to 60. On Oct. 31, the members of the General Confederation of Labor who had been arrested after the Draveil affair were set free.

DEBATES ON THE MOROCCAN POLICY. The course of affairs in Morocco was the main subject of interest in the year's record. The details of the French military operations and of the contest between the rival sultans, which resulted in the overthrow of Abd el Aziz by Mulai Hafid, will be found in the article MOROCCO. In the French Parliament the forward policy in Morocco which was begun early in the year aroused the opposition of the Socialists and led to interpellations in the Chamber by the Socialist leader, M. Jaurès, who sharply arraigned the course taken by the government. He condemned the Moroccan enterprise and demanded withdrawal from it. His opinions were familiar to the public and not much importance was attached to them, but they served to call forth an interesting expression of opinion from M. Delcassé in his retirement, who explained the Moroccan policy which he had followed as Minister of Foreign Affairs. France, he said, had done wrong in going to Algceiras under threats from Germany. These threats had no real basis. War would not have followed the refusal of France. Germany's campaign at that time was, he declared, merely one of intimidation. Against M. Delcassé's views on this point it was urged that he had much to say about the friendship and the alliances of other nations with France, but nothing of the readiness of France for war, and he was criticised for having done so little to place her on a satisfactory military and naval basis. Nor could his critics agree that Germany would not have gone to war at that time. By a large majority the Chamber voted (436 to 51) on June 28, their confidence in the government's policy, declaring that French interests in Morocco should be defended without interfering with internal affairs, and that the Act of Algceiras should be applied.

DIFFICULTIES WITH GERMANY. The government encountered more serious difficulties in its relations with Germany, which on several occasions seemed in danger of becoming strained. The press in the two countries abounded in recriminations during the year, but the chief difficulties were caused by, first, Germany's attitude in the question of recognition of Mulai Hafid, and second, her position in the matter of the Casablanca deserters. Both questions were settled amicably, but they left the general impression not only in France but among observers in foreign countries that Germany had no real occasion to raise them at all. After Mulai Hafid was proclaimed Sultan at Tangier (Aug. 23) and declared that

he would observe the terms of the Act of Algeiras and assume his predecessor's public debts, the German government proposed his immediate recognition by the Powers. The French held that the initiative in Moroccan affairs belonged incontestably to France and Spain, as the mandatory powers under the Act of Algeiras. They saw in Germany's sudden demand an intention to cause difficulties and perhaps even an attempt to humiliate France, as in 1905. The French and Spanish governments responded to this demand in a joint note addressed to the Powers, in September, declaring that they were ready to recognize Mulai Hafid under the following conditions: Confirmation of already existing treaties between Morocco and foreign states; acceptance of responsibility for debts of the previous Sultan; recognition of the commission of indemnities for Casablanca, and responsibility for the payment of these indemnities; formal and public disavowal of the Holy War, and the address of a notice to that effect to all the towns and tribes; immediate adoption of all measures necessary to insure the safety of the ports and of the travel routes of the interior. It concluded with the following paragraph: "These guaranties once obtained, Mulai Hafid may be officially recognized. The Powers naturally retain the right to demand directly of the new Sultan the settlement of the questions that concern their separate interests, and particularly as regards France and Spain the reimbursement of the expenses occasioned by the recent expeditions as well as the payment of indemnities for the murder of their citizens. It would finally be desirable that the new Sultan should make honorable provision for Abd-el-Aziz." The German note in reply to the Franco-Spanish communication was issued on Sept. 23. It expressed the agreement of the German government with these conditions, was cordial in tone and offered only a few minor suggestions that made no material alterations.

THE CASABLANCA AFFAIR. German diplomacy took much the same course in the Casablanca incident. This incident, as narrated by the press at the time, was as follows: Five soldiers (according to some accounts, six) of the Foreign Legion, including three Germans, deserted and concealed themselves in Casablanca under the protection of the German Resident. A German steamer having arrived in port, the deserters, escorted by employees of the consulate, went on board. The French gendarmes having attempted to arrest them, a struggle ensued, but finally they were all arrested and imprisoned. The German Consulate thereupon demanded the release of the three Germans, and the French military authorities refused. According to the German official account, the three German deserters, while being escorted to the vessel by the secretary and a soldier of the Consulate, were attacked by French marines. There were further conflicts in detail in the other accounts of the affair, but the main point is that the German contention at first was that Germans serving in the French Foreign Legion retained their national rights and privileges, and that German consuls are warranted in protecting them if they appeal to the Consulate. The French government immediately made it known that it was ready to submit the affair to The Hague Tribunal for arbitration, but Germany demanded that before this was done the

French government should express its regrets for the manner in which the German representative had been treated by French soldiers. To this the French Minister of Foreign Affairs, M. Pichon, replied that it was not to be expected that the French government would condemn itself in advance, and it was made known that France would not make any further concession than a reference of the question to arbitration. Finally, however, the French proposed as the solution of the difficulty that both governments should express their regrets simultaneously and in such a manner as not to prejudice the decision of the arbitrators; and Germany accepted this compromise. The protocol as to the arbitration of the affair was signed in Berlin on Nov. 24, and the excitement over the matter subsided. See GERMANY, paragraphs on *History*; INTERNATIONAL ARBITRATION.

THE ANGLO-FRENCH ENTENTE. The friendly relations between France and Great Britain were marked on many occasions during the year, especially by the visit of M. Clémenceau to London to attend the funeral of Campbell-Bannerman; the visit of M. Cruppi, Minister of Commerce, and M. Ruau, Minister of Agriculture, at the opening of the Franco-British Exposition, and the visit of President Fallières during the exposition. M. Fallières was in London from May 25 to May 29. On these occasions there were many evidences of the popularity of the *entente*, and at the banquet given to M. Fallières at Buckingham Palace on May 26, the King and the President expressed their hopes that the *entente* would be strong and enduring. The question of making it a definite alliance was much discussed in the press, but the general opinion seemed adverse to this as not likely to be of any advantage to either power, and to favor rather the maintenance of the existing relation.

QUESTIONS OF NAVAL ADMINISTRATION. Parliament opened on Oct. 13. The months of October and November were taken up largely with discussions of the successive clauses of the budget, which was finally passed by the Chamber on Nov. 28. During the discussion of the naval budget, M. Delcassé, who had been president of the committee appointed to investigate the causes of the disaster on the *Iéna* in 1907, attributed it to the negligence of the authorities, and demanded a complete reform. M. Thomson, Minister of Marine, replied to the effect that much of the responsibility rested on his predecessors. The Chamber by a large majority passed a resolution deploring the negligence in the naval administration, but later, on the demand of M. Clémenceau for a vote of confidence in the government, withdrew certain words in that resolution which had been construed as implying censure of the ministry as a whole. At the end of the session M. Thomson resigned, and on the following day was succeeded by M. Alfred Picard, former Commissioner General of the exposition of 1900. Other disasters than that of the *Iéna* had also occurred more recently. In 1908 for example, an explosion in the turret of a French cruiser had resulted in the death of several men. (See paragraph *Navy* above.) Early in December the council of ministers decided to relieve Vice-Admiral Germinet, who was reported in the press as saying that a certain article which had declared that the six newest battleships had no

ammunition for many of their guns and would be unable to fire after three hours of action, owing to the deficient reserves in their arsenals, was correct, and that he had written and spoken to the minister about the matter. In certain quarters the government's suspension of the Admiral from the command of the Mediterranean Squadron was criticised on account of his long and distinguished service. Its action was said to be too severe and without precedent. M. Clémenceau's explanation turned on the necessity of maintaining discipline. He pointed out the ways open to the Admiral for redress if his immediate superior did not listen to him; and he condemned the Admiral's recourse to newspaper publicity. The main point of the affair was, he said, the actual condition in the navy. He announced that an investigation would be made by the new minister, M. Picard, who would thoroughly examine the state of the fleet and report on it in January. Meanwhile there were not sufficient data to decide the question, but if Parliament thought it knew enough about it it might divide against the government. In the vote that followed the government was sustained, Dec. 8, by a majority of 335 to 140.

OTHER EVENTS OF THE YEAR. The question of church separation no longer held the prominent place that it occupied in 1907 and preceding years. There were, however, some echoes of the old controversy. Among these was the question of the so-called mutual associations among the clergy. The suggestion had been made, on the side of the Catholic laity, that the large accumulated funds bequeathed for the celebration of masses might be transferred to associations of aged priests if organized in the form of mutual aid societies and under legal sanction. An amendment to that effect was adopted in the Chamber on April 9, by a vote of 345 to 205, the minority comprising the irreconcilable anticlerical element. On May 21, however, the Pope, in a letter to the French cardinals, refused his sanction to the proposed "mutualities," loath though he was to impose new sacrifices upon the harassed French priesthood. He disapproved of the mutual associations because the opportunity for membership would be open to undesirable persons, and no means were provided for expelling delinquent members, or such even as had left the communion of the church. "To sum up, the French pastorate is called upon to organize itself into an independent body and to abandon their character as priests in communion with the Apostolic See." The failure of the mutual associations aroused wide disappointment in Catholic circles. The property that would have gone to them was given to charitable institutions or held subject to the direct heirs of the original legatees. On Jan. 12 the Abbé Loisy was summoned by the Bishop of Langres to answer certain questions in regard to statements that it was alleged would appear in a forthcoming book, but he did not obey the summons, excusing himself on the ground of ill-health. A week later he was required by the Bishop to submit to the Papal decree and the *Pascendi* Encyclical and to promise conformity in his future publications. The Abbé made some objections in his reply. On Mar. 7, after publication of his book, he was excommunicated.

The Feminist Congress was held in Paris early in July. The woman suffrage movement was ac-

tive in France during the year, as in other countries, but is there known under the more general name of Feminism, and aims not only at political, but at social reforms, in such matters as marriage, divorce, the rights of the father over his children, etc. There were signs of a growing demand in certain quarters for the introduction of proportional representation, the *scrutin de liste*, the redistribution of seats, and the reduction in the number of members of Parliament. Among the leaders of this movement were Delcassé, Deschanel, Ribot, Brisson and other prominent public men. Active measures had been taken toward the close of 1907 to secure these reforms, and an important parliamentary group continued in 1908 to carry on its propaganda.

In the municipal elections of May the Socialists underwent a serious defeat. (See **SOCIALISM.**) In February a group of Parisian Protestants petitioned the Senate against infringement of the worship and of the private property of any religion. In July the Paris Commune asked the government for the "transfer to the city of the fortifications of Paris, with a view to the construction of an outer circular boulevard and several public parks." Important questions arose during the year in connection with the administration of Algeria, the French Congo and Indo-China. In the last-named dependency the granting of a native consultative chamber had marked a policy of concession to the growing demands of self-government; but it was soon feared that the administration had gone too far in that direction. The new Governor-General, appointed in 1908, adopted a more stringent policy toward native aspirations. For a discussion of this and other matters affecting these colonies, see the several articles.

The question of capital punishment was discussed in the press and Parliament throughout the year. The death penalty had been virtually suspended for some eight years through the exercise of presidential clemency. M. Fallières was personally opposed to capital punishment, and M. Clémenceau's Socialist-Radical party was pledged to bring about its abolition. Public sentiment, however, was stirred up during the last two years by a series of peculiarly revolting murders and a general increase of crime. On Dec. 8, the Chamber (330 votes to 201) declared for the reestablishment of the death penalty. Measures for combating the increasing alcoholism among the poorer classes received much attention. The consumption of distilled liquors has increased 400 per cent. in 70 years and France has the unenviable distinction of ranking with Austria-Hungary and Belgium as nations of increasing inebriety. During the last week of December there were serious riots among the Parisian medical students owing to a change in the scheme of examination at the Sorbonne. The appointment of M. Thalamas, the author of a somewhat hostile *Life of Joan of Arc*, to a professorship at Sorbonne, gave rise to considerable disorder. On Christmas day, President Fallières was attacked by a half-witted person who announced that he was a Royalist partisan and took this means of protesting against the government. The assailant was unarmed and M. Fallières received no injury, but intense indignation was aroused by the attack, which even the Royalist papers characterized as the act of an imbecile.

FRANCIS JOSEPH I. EMPEROR OF AUSTRIA. See AUSTRIA-HUNGARY.

FRANCO, João. A Portuguese statesman, became practical dictator after the dissolution of the Cortez on May 11, 1907, and maintained his position until the assassination of King Carlos on Feb. 1, 1908. He was born in the province of Beira, received a good education, and entered Parliament. He founded the party of Liberal-Regeneradores in 1901 with a platform of social and economic reform, and in 1906 was asked by the King to form a ministry. For many years Portugal had been in the grasp of two parties, professing respectively Liberal and Conservative principles, and nominally antagonistic, but in reality united in the pursuit of office and the fostering of corruption. On taking office, Franco entered upon a policy of stringent reform, but he was defeated in the elections of 1906, and the opposition of the politicians caused him to dissolve the Chambers. From that time he ruled as a dictator, supported by the King. The press was placed under strict censorship, and it was his idea to return to representative government only after the success of his reforms had demonstrated their utility. The dissatisfaction with his rule culminated, however, in the assassination of King Carlos, and Franco was obliged to leave the country. See PORTUGAL.

FRANCO-BRITISH EXHIBITION. See EXPOSITIONS; ARCHITECTURE.

FRANZ FERDINAND, Archduke of Austria and heir-apparent to the throne of Austria and Hungary, took a prominent part in directing Austrian foreign policy during the year 1908, and to his influence is supposed to be due the annexation of Bosnia and Herzegovina, contrary to the advice of the Emperor. He was born at Gratz in 1863, the son of Karl Ludwig, eldest brother of Franz Josef, the present Emperor. His father became heir presumptive in 1889 on the death of the Emperor's son, Rudolph, but renounced his rights in favor of his son, and died in 1896. Franz Ferdinand marriedmorganatically in 1900 the Countess Sophie Chotek. The issue of the marriage are incapable of inheriting the Austrian throne, but it is contended that the Hungarian laws are different, and some difficulty is expected from the efforts he is likely to make to compel the recognition of his wife as Empress on his accession and to secure the succession in both realms to his eldest son.

FRATERNAL ORGANIZATIONS. A title applied to those secret societies which maintain a death, sickness, or accident fund for their members. Many of these societies are under the surveillance of the State insurance departments, which exact from the governing bodies such statistical information as tends to check betrayal of trust. The following are the principal organizations of the kind in the United States:

	Date of foundation	Membership.	Benefits dis- bursed since organization.
American Benefit Society	1893	6,000	460,000
American Guild	1890	25,000	1,726,179
Ben Hur, Tribe of	1894	100,315	5,948,702
B'nai B'rith, Independent Order of	1843	30,283	.....
B'rith Abraham Order	1859	61,389	2,673,359
Brotherhood of American Yeomen	1897	61,671	2,131,626
Catholic Benevolent Legion	1881	18,644	19,860,715
Catholic Knights of America	1877	20,000	16,000,000
Catholic Mutual Benefit Association	1876	59,442	19,164,829
Court of Honor	1895	65,000	5,588,303
Druids, United Ancient Order of	1781	30,042	6,267,371
Eagles, Order of	1889	311,159	3,920,532
Elks, Benevolent and Protective Order of	1868	284,321	.....
Foresters, Ancient Order of	1836	40,992	135,950,000
Foresters of America	1864	260,000	26,000,000
Foresters, Independent Order of	1874	235,441	821,912
Fraternal Brotherhood	1896	38,341	1,278,850
Fraternal Union of America	1896	28,627	940,474
Golden Cross, United Order of	1876	77,389	9,630,604
Heptasophs, Improved Order of	1878	19,656	14,108,663
Hibernians of America, Ancient Order of	1836	217,000	27,892,750
Irish Catholic Benevolent Union	1869	15,000	491,413
Knights and Ladies of Honor	1877	96,000	27,000,000
Knights of Columbus	1882	210,078	3,669,597
Knights of Honor	1873	40,126	86,692,268
Knights of Malta, Ancient and Illustrious Order	1048	30,000	.....
Knights of the Golden Eagle	1873	71,960	.....
Knights of the Maccabees of the World	1883	285,341	34,212,159
Knights of the Modern Maccabees	1881	112,846	1,227,904
Ladies' Catholic Benevolent Association	1890	102,129	6,169,076
Ladies of the Maccabees of the World	1892	156,609	6,444,410
National Union	1881	62,000	27,000,000
New England Order of Protection	1887	54,119	6,950,000
Order of Gleaners	1894	56,000	744,521
Pilgrim Fathers, United Order of	1879	19,634	6,862,880
Protected Home Circle	1886	65,273	4,349,674
Rechabites, Independent Order of	1842	441,000	10,000,000
Red Men, Improved Order of	1763	471,661	23,918,007
Royal League	1883	29,141	5,337,044
United American Mechanics, Order of	1845	36,554	.....
United American Mechanics, Junior Order of	1853	194,741	7,172,891
United Workmen, Ancient Order of	1868	219,729	163,445,905
Woodmen of America, Fraternity of Modern	1883	920,079	64,561,733
Woodmen of the World	1890	505,398	4,652,941

FRÉCHETTE, LOUIS HONORÉ. A French-Canadian poet, died on June 1, 1908. He was born in Lévis, P. Q., on Nov. 16, 1839, was educated at the Quebec Seminary and at Laval University, and was called to the bar in 1864, but in 1865 went to Chicago, where he remained until 1871. Here he was employed first as a journalist, and then as corresponding secretary of the Illinois Central Railway Land Department. He returned to Canada in 1871, and practised law in Quebec until 1874, when he was returned to the House of Commons for Lévis. After 1882 he devoted himself chiefly to literature, though in 1889 he was appointed clerk of the Legislative Council of the Province of Quebec. He edited *Le Journal de Québec* in 1861-62, *Le Journal de Lévis* in 1864-65, *L'Amerique* (at Chicago) in 1868-70, and *La Patrie* (Montreal) in 1884-85. Fréchette was the most distinguished of contemporary French-Canadian writers; two of his volumes of poems, *Les fleurs boreales* (1880), and *Les oiseaux de neige* (1880), were crowned by the French Academy in 1880, and he was awarded the first Montyon prize. He was made an LL.D. by both McGill and Queen's universities in 1881, was appointed a fellow of the Royal Society of Canada in 1882, and was created a C. M. G. by Queen Victoria in 1897. He was a founder and the first president of the Canadian Society of Arts in 1893, was created a Knight of the Legion of Honor in 1897, and was an officer of the French Academy. Dr. Fréchette had been called the "Lamartine of Canada," and it was said of him that he had "made the history of France beyond the seas live again in poetry."

FREEER, FREDERICK WARREN. An American painter, died on Mar. 7, 1908. He was born in Chicago, on June 16, 1849, studied in the Royal Academy in Munich, and also in Paris, and from 1880 to 1890 lived and worked in New York City. He was awarded medals at the World's Fair in 1893, at the Pan-American Exposition in 1901, and at the Charleston Exposition in 1902; the Cohn prize at the Art Institute in Chicago, in 1903; the Artist's prize and medal at Chicago in 1903, and a bronze medal at St. Louis in 1904. For several years he had been an instructor in the Art Institute, in Chicago. His principal pictures include "A Lady in Black," "Consolation," "The Old Letter," "Sympathy," and "In Ambush."

FREE-TRADE CONGRESS. See **TARIFF.**

FRENCH ACADEMY. See **ACADÉMIE FRANÇAISE.**

FRENCH CONGO. A French possessor in equatorial West Africa. Its area is estimated at 680,000 square miles, and its population at 8,000,000, that of the territory directly administered being estimated at 3,652,000 in 1907. The products include manioc, coffee, vanilla, cacao, kola nuts, pissava, palm-kernels, palm-oil, valuable woods, rubber, etc. Libreville, in the north, and Loango, in the south, are the principal ports. The imports and exports in 1907 were valued at 15,652,482 and 20,298,039 francs respectively, the trade with France amounting to 6,565,000 of imports and 9,134,000 of exports. There are about 870 miles of telegraph line. The country as a whole is under a Governor-General—in 1908, M. Merlin—assisted by a Secretary-General and an administrative council. Since Feb., 1906, the country has been divided into three colonies—the Gabun

colony, to the south of Kamerun, with Libreville as the capital; the Middle Congo colony, to the north and east of the former, with Brazzaville, on the Congo, as the capital; and the Ubangi-Shari-Chad colony, farther north, with Fort-de-Possel as capital. The first and last named are under Lieutenant-Governors, while the Middle Congo colony is under a Chief Administrator. The Chad region of the Ubangi-Shari-Chad colony is for some purposes administered as a territory. Each of the three colonies has an administrative council and a distinct budget, while the Commissioner-Generalship has a general budget of its own. For 1907 the general budget balanced at 5,019,000 francs, and those of the separate colonies balanced as follows: Gabun, 383,000; Middle Congo, 508,100; Ubangi-Shari, 423,000; Chad, 302,000. The expenditure of France on the French Congo for 1908 was estimated at 3,780,329 francs. The debt of the French Congo in 1907 was 1,706,000 francs. The military force consists of over 3000 men, nearly all natives. Included in the French Congo are the native states of Bagirmi and Wadal. The latter has proved troublesome to the French, and will yet have to be conquered.

HISTORY. In 1908 there were signs of awakened interest on the part of the home government in the development of French Congo. Hitherto, little had been done for the improvement of the country and the let-alone policy was the rule. But with the recent nomination of M. Merlin as Governor-General, more public interest in the colony was shown. Down to 1907 there were only 1600 effective troops. In that year the number was increased to 2250, and in 1908 to 3000. In the latter year the new Minister of the Colonies, M. Milliès-Lacroix, said he would ask for funds sufficient to support 4000 native sharpshooters in 1909. Plans were also formed for uniting the various posts by telegraph, including a line from Loango to Libreville, and two other lines centring at Brazzaville. As to railway projects, for some time two routes have been under consideration for a new line of railway. One of these runs from Loango along the Niari-Quilliu Valley and the other from Libreville through a fertile country to an affluent of the Congo at the point where it becomes navigable. Objection to the former has been made on the ground that it is too near the Belgian Railway. The railway of Belgian Congo is open to the traffic of the neighboring states, but it drains only the country along the banks of the River Congo. Hence this new line in French territory has been proposed. By the decree of June 26, 1908, the title of Commissary-General, hitherto borne by the head of the French Congo administration, was changed to that of Governor-General, and an increase of salary was declared. This marks the raising of the status of French Congo to the rank of the more important French colonies and indicates the growing interest of the home government. A short time before the publication of that decree, a treaty dated June 9, 1908, fixed the frontier between the French Congo and the adjoining German colony of Kamerun. A provisional boundary line had been determined between French Congo and the Kamerun in 1894, but at that time the country was imperfectly known. The new boundary treaty substitutes for the limits of 1894 a more

exact frontier, and corrects a number of errors in the former arrangement.

FRENCH GUIANA, OR CAYENNE. A French colony and penal settlement on the northeast coast of South America. Area, about 30,463 square miles; population (1901), 32,908, including 4097 convicts and 1885 Indians. In 1908 there were 6290 convicts. Cayenne, the capital and only seaport, had 12,612 inhabitants in 1901. Only about 9000 acres are in cultivation. Gold mining is the principal industry. Silver, iron and phosphates are also mined. The principal exports are gold, phosphates, cacao, woods, rosewood oil, hides, and balata. In 1907 the imports and exports amounted to 14,013,078 and 12,302,369 francs respectively, the trade with France being represented by 10,045,000 francs of imports and 9,666,000 francs of exports. The colony is administered by a Governor, assisted by an Executive Council and an elective General Council. It is represented by one deputy in the French Chamber. The local budget for 1907 balanced at 3,497,000 francs. The debt in 1907 stood at 76,000 francs. The expenditure of France for 1908 was fixed at 6,262,978 francs, nearly all for the penal settlement. The Governor in 1908 was M. Rodier.

FRENCH GUINEA. A French colony in West Africa. Its area is estimated at 106,200 square miles; its population at 1,470,000. The capital is Konakry, on Tombo Island. The products are palm-nuts, palm-oil, earth-nuts, gum, rubber (1500 tons exported in 1905-6), rice, millet, coffee, cacao, bananas, pineapples, etc. In 1905 there were grown 2315 pounds of cotton. There are extensive forests, the mango and kola trees being the most important commercially. Some iron and gold deposits are worked by the natives. In 1907 the imports and exports amounted to 16,344,215 and 15,989,746 francs respectively. The foreign trade is mostly with France, Great Britain, Germany and Liberia, the three first-named countries maintaining regular steamship lines to Konakry. The imports from France in 1907 amounted to 6,095,000 francs, and the exports to France, 5,496,000. The railway from Konakry, which is to run to Kouroussa, on the Niger, was 137 miles long in 1908. A highway, completed from Konakry to the Niger, is to be connected with the railway stations by branch roads. The telegraph lines had a length of 1513 miles in 1905. The colony is administered by a Lieutenant-Governor, who is under the Governor-General of French West Africa (q. v.), and is assisted by a council of six members, three official and three unofficial.

FRENCH INDIA. French possessions consisting of five dependencies in India, namely Chandernagar, in Bengal, 3.6 square miles; Yanaon, 9 square miles; Pondicherry, 111 square miles, and Karikal, 51 square miles, on the east coast of Madras; and Mahé, 22.5 square miles, on the west coast. In 1906 the total population was estimated at 272,113. The population of the principal towns was in 1906 as follows: Pondicherry, the capital, 46,887; Karikal, 17,511; Chandernagar, 24,323; Mahé, 9912; Yanaon, 4645. At Pondicherry the deaths greatly exceed the births. In 1906 there were 229 schools with 17,626 pupils. The imports and exports at the ports of Pondicherry, Karikal, and Mahé in 1907 were valued at 6,885,271 and 26,268,145 francs respectively, the trade with France being represented by 1,376,000 francs of imports and 14,064,-

000 francs of exports. The colony is administered by a Governor, assisted by an elective General Council. In the French Parliament it is represented by a senator and a deputy. The local budget for 1907 balanced at 2,397,000 francs. The debt in the same year stood at 796,000 francs. The French subvention in 1908 was 250,000 francs. The Governor in 1908 was A. Bonhoure.

FRENCH INDO-CHINA. A Governor-Generalship, including the colony of Cochin-China, the protectorates of Tongking, Laos, Annam, and Cambodia, and the lease of Kwang-Chow-Wan, on the south coast of China. For the area, population, products, and local budgets of the various sub-divisions, see under the respective titles. The total area is estimated at 256,000 square miles, and the total population (1906) at 15,858,514. In 1907 the total cotton production amounted to 5,635,840 pounds of ginned cotton and 5,859,840 pounds of seed cotton. The rubber plantations in 1908 were not yet in bearing. The whole country, exclusive of the Chinese lease, forms a customs union. The total imports in 1907 amounted to 294,977,168 francs, and the total exports, 253,357,657, the trade with France being represented by 101,642,000 francs of imports and 39,716,000 francs of exports. Other countries participating largely in the foreign trade are China, Japan, and Hongkong. The principal imports are cotton yarn, cotton piece goods, petroleum, paper goods, tobacco, tea, metal goods, and beverages. The principal exports are rice (1,413,540 tons in 1907, against 728,736 tons in 1906), fish products, pepper, coal, hides and skins, cotton, rubber, silk, and gum-lac. Of the 1,505,015 tons entered in 1906, 691,067 was French, 333,046 British, and 226,279 German; of the 1,523,083 tons cleared, 713,861 was French, 321,950 British, and 236,310 German. In 1908 the railways had a length of 711 miles, exclusive of those in construction; telegraphs, in 1906, 8461 miles. The general administration is in the hands of a Governor-General at Hanoi, Tongking, assisted by a Secretary-General. The protectorates are under the supervision of Superior Residents, while Cochin-China is under a Lieutenant-Governor. The military force in 1908 consisted of 14,309 Europeans and 18,427 natives. The naval force consists of a battleship, 3 armored cruisers, 3 protected cruisers, 4 destroyers, 2 gunboats, 12 torpedo boats, 4 submarines, and smaller craft, with 4500 men. The general budget for 1908 balanced at 32,805,000 francs, the revenues being derived mainly from customs, monopolies, posts, telegraphs, and railways. The debt in 1907 amounted to 392,557,000 francs. The expenditures of France for 1908 were fixed at 14,448,519 francs for Cochin-China and 29,407,359 francs for Annam and Tongking, nearly all for military purposes. In 1907 Siam surrendered to France about 7800 square miles of territory adjacent to Cambodia, while France restored to Siam certain territories in the Laos region and also granted it a perpetual lease of four ports on the Mekong. The Governor-General in 1908 was A. Klobukowski.

THE NEW GOVERNOR-GENERAL. M. Klobukowski was appointed to succeed M. Beau as Governor-General, and started for Indo-China on Aug. 30 to assume his duties. He was formerly minister to Cairo and had had a long and distinguished career, in the course of which he had served in Indo-China and gained a thorough knowledge of the Far East.

ECONOMIC AND FINANCIAL CONDITIONS. The colonies appeared to be on a sound economic and financial basis in 1908, having completely recovered from the crisis of 1905-6. Commerce had recently increased and the budgets were beginning to show a surplus. Periods of scarcity had recurred with great regularity and the government's surplus in good years was likely to be required to meet the demands of hard times. The retiring Governor-General declared that within two years and without increased taxation means would suffice for the carrying out of plans for economic improvement, including the loan for the construction of the Yunnan railway. There was, however, popular discontent with the methods of collecting the taxes. Abuses in the collection of indirect taxes caused disaffection among the natives in certain localities.

DISTURBED POLITICAL CONDITIONS. For an account of the difficulty with the Chinese on the Tongking frontier, owing to their raids across the border and the killing of French troops, see CHINA, paragraphs on *History*. This occasioned some criticism of the French government for having in the previous year reduced the number of effective troops in Indo-China and diminished the number of fortified places on the frontier. The situation among the natives was more alarming, especially in Central Annam, where in April and the early part of May there were signs of serious disaffection. Thousands traversed the country in bands, compelling passers-by to join them, and urged the people to join in a strike against the payment of taxes. They went before the resident chiefs and protested against the exactions of the mandarins. They were unarmed and did little damage. The Europeans were unmolested. The real nature of the movement was not understood. Some explained it as a popular impulse toward progress along the lines that Japan had followed. Others saw in it a conservative reaction in favor of the old régime. Its immediate cause, however, was the discontent with the tax system as administered by the mandarins. Critics of the government argued that too many concessions had been made to the vague political aspirations of the people, creating an impression that the government would relax its hold. It was ill-advised, they said, to encourage the natives with hopes of liberty in the European sense and of institutions unsuited to their stage of development. It was also said that the rule was divided between too many conflicting and overlapping jurisdictions to the confusion of the Annamese. On June 27 an attempt at poisoning nearly cost the lives of 250 French soldiers. This greatly alarmed the colonists, a body of whom went to the Governor-General's palace, forced the doors and demanded the heads of the guilty. The Governor-General restored order with some difficulty. Much concern over the matter was expressed in the French press. The criminals were punished with great severity. Some native soldiers attempted a mutiny and there were further aggressions from bandits, who had for a long time past committed outrages at intervals. These things were cited as proof of greatly disturbed conditions, but on the other hand it was said that the situation was not as serious as had been represented and it was thought that the new administration would deal with it effectively. Vigorous measures had already been taken against the bandits

and the government had increased the corps of occupation. Some critics of the administration advocated an extreme measure of decentralization that would leave the Governor-General little authority. Others held that the difficulties would be removed by more prudent and skilful administration, declaring that the agents of the government were often imprudent and careless of political consequences, especially in the matter of collecting taxes. They advocated the admission of the resident chiefs to a share in the financial administration. They said that the trouble was due in no small part to the dispersion and crumbling of power, to the tendency to get out of relation with the mandarins, to the introduction of an education that did not sufficiently regard tradition and was ill-suited to the needs of the people and to the importation of electoral devices out of keeping with their character.

FRENCH LITERATURE. The year 1908, like 1907, was notable for a rather marked tendency to react against radical theories, a tendency which manifested itself in two ways: with some in giving up altogether the fighting for ideas and for a while cultivating art for the sake of art; with others, in opposing conservative theories to revolutionary views. Possibly in 1908 there was a little more fighting spirit on the progressive side.

THEATRE. As the *YEAR BOOK* gives elsewhere a special account of the events in the dramatic world, we need only indicate here a few facts that will not be reviewed there.

Several authors adopted the form of the drama in verse to express their ideas, without expecting to get their works put on the stage, so Blémond, *Théâtre légendaire*, with such plays as *Le jugement de Salomon*, *Reyne de Naples*, *Libres cœurs*; and Raoul de Lafayette, who has a great five act drama, *La grande Lorraine* (Lafayette belongs to the first generation of the Parnassian poets).

Several classical novels were put on the stage: Balzac's *L'auberge rouge*, Bourget's *L'émigré* and *Le divorce*, Loti's *Ramuntcho*. Among the interesting "reprises" was Molière's *Misanthrope*, with Mlle. Cerny, and Leitner.

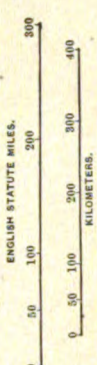
The 50th anniversary of Rachel's death was commemorated. The creation of a *Théâtre indépendant* which produces plays of young authors, nine a year, should be mentioned. After the "première," 15 representations will be given in different quarters of Paris and of the provinces.

NOVELS. Some maintain that the novel is losing ground in literature (See *La Revue*, Oct. 1, 1908, *Le Krach du Roman*). Certainly the reviewer feels quite differently, seeing not only the great number of them that came out in France in 1908, but the great number of good ones. First there are a good many that cannot be considered as exactly introducing a new note in literature, but must be mentioned as standing above the average production: Marcel Prevost's *Lettres à Françoise Mariée* are still interesting, though not up to the *Lettres à Françoise* (1907). The clever, poetical, piquant girl fascinated us; the poetry of married life is not so well grasped by the author, and then a man giving advice to a married woman—it is just a trifle ridiculous; but Marcel Prevost turns to be more and more a writer of the moralizing type. Bourget's *Détours du cœur* are such stories as have come from the pen of this author for many



**BURMA, SIAM,
FRENCH INDO-CHINA,
AND
STRAITS SETTLEMENTS.**

Chief Capitals Secondary Capitals
Railroads in Operation Proposed or under Construction



**BAY OF
BENGAL**

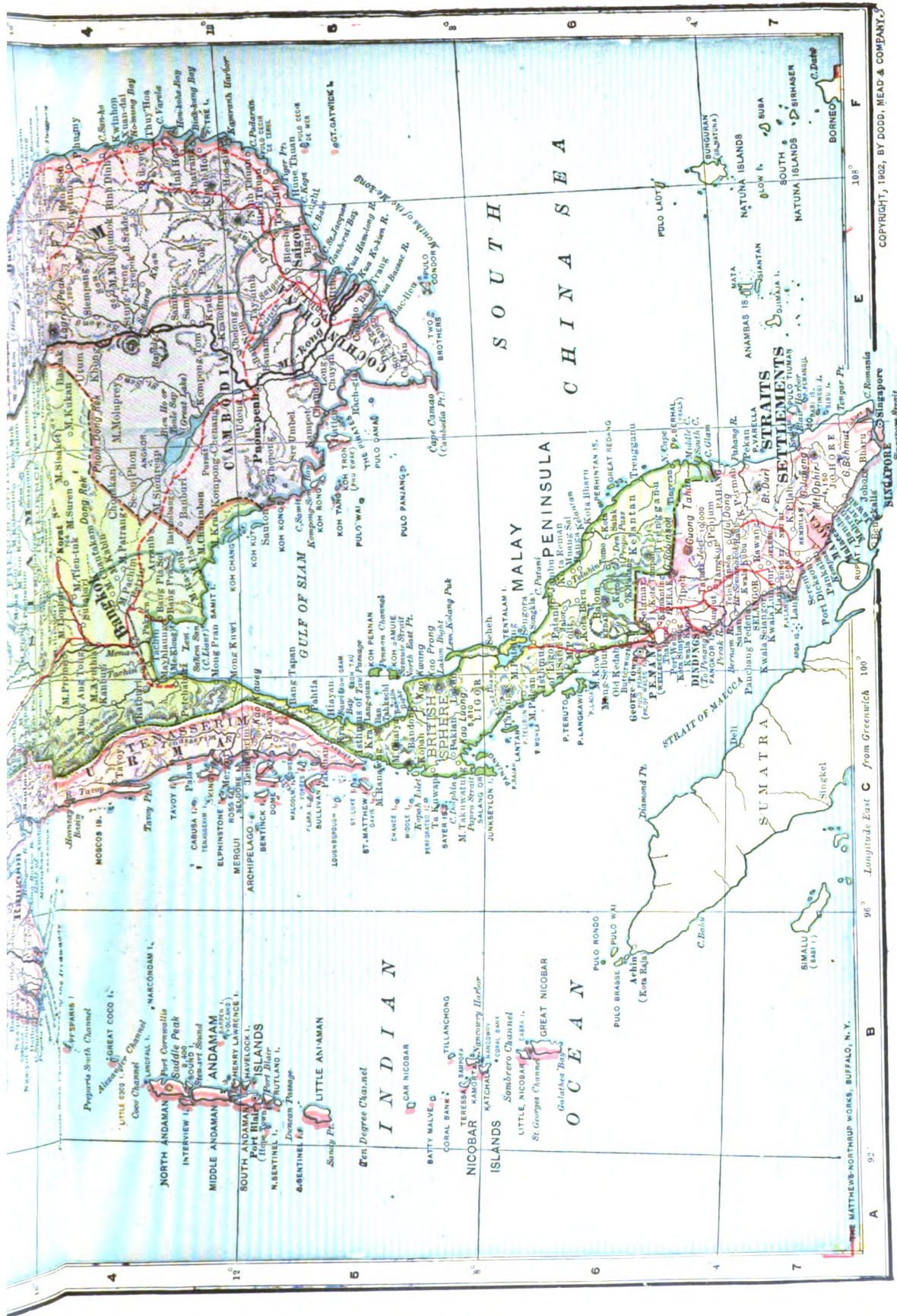
TONGKING

INDO-CHINA

SIAM

BURMA

CHINA



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years and which will please the admirers of the subtle psychologist. *Aloyse Valérien* is one of the strongest books yet written by Rod, showing very forcibly the discrepancy between our social theories, indispensable to assure order, and our individualistic aspirations which refuse to submit to the requirements of social conventionalities. L. Frapié's *Les figurantes* treats in his usual gloomy tone the modern problem of the relations between masters and servants, the latter being the *figurantes*. G. Rouvier's *Toits rouges* studies the same problem as Bourget's "L'épave," i. e. the man who tries to rise above his class and suffers wreck; and Halévy's *Un épisode* shows—again in the reactionary spirit of a Bourget—how a man, only moderately gifted and who is misled by the teaching of the "université populaire," ends by killing himself because he does not feel that he can ever become "esthetic" enough. Perhaps the most powerful novel of the year in France is *La vie secrète* by Estaunié (the author of *L'empreinte*). Every one has within himself possibilities to achieve something in life; he may lead apparently the dullest life, the most insignificant one in the eyes of his fellow men, while, unknown to the others, even of his friends, he is burning with an interior fire for some generous, disinterested purpose in life. Many neglect their chances, others get at their "secret life" only through terrible storms, but the one who does not answer when God passes and calls them remains of course sterile.

The humorously pathetic novel is cultivated more and more in France, and by masters too. Jules Renard, of the "Académie Goncourt," has given brothers and sisters to the inimitable "Poil de Carotte," in *Ragotte*, and in *Les frères farouches*. A. Lichtenberger has scored another success with *La folle aventure*. Tristan Bernard is extremely human in *Deux amateurs de femmes* (not a book for girls), and Jean Aicard has given us a work that will not be forgotten again, his most picturesque and amusing *Maurin des Maures*, a sort of Don Quixote from Provence, another Tartarin.

Daniel Lesueur's *Nietzscheenne* has been much talked of, on account of the reputation of the author, but it is clear that she has not read one line of Nietzsche; for what she calls a Nietzscheenne is nothing but a good, courageous woman. A truly Nietzschean novel, on the other hand, is Abel Hermant's *La discorde*, where a weakling is first tortured morally by a wife who has taken to the morality of the right of the strong, and finally killed by his brother-in-law who commits his crime to obey his principle of "transcendental immoralism." Hermant publishes also *Train de luze*, with a series of pictures of famous personalities from all over the planet who come to Paris in order to forget their troubles and their failures in life. Jules Bois's *Vaisseau des carresses* is the story of a young girl globe-trotter, "Glatic, l'alouette de Java" whose desultory frivolous, tragic love adventures aboard a great steamer causes sufferings for herself as well as for others.

The historical novel seems to regain special favor. Several are inspired by the Franco-Prussian War: *Les étapes douloureuses* by Baron d'Verly (étapes from Metz to Sedan); *Les cahiers rouges* by M. Vuillaume (relates to the horrors of the Commune); *L'Espoir* by G. Lecomte (describes the days after the war); novels of the times of the French Revolution;

Marcel Bastilliat's *La Vendée aux genets* is a novel of the kind of Balzac's *Chouans*, and G. d'Esparbé's *Le briseur de fers* is an inspiring account of the exploits of a genial sea captain, Hubert, against the English.

Two novels deserve special mention. Romain Rolland's *Jean Christophe à Paris*, the fifth volume of a story whose four preceding ones described the disillusion of the hero, a musician, in modern Germany where industrialism and militarism crush higher aspirations. The author is by no means more indulgent to Paris than he was to Germany in his criticism: art, literature, philosophy are just for show; the hope and strength of France is not in this civilization of "rastaquouères" which people usually admire, but in the lower strata of population and amongst those simple hearted people who are the brothers and sisters of Joan of Arc.

The other important novel is France's *L'île des Pingouins*. This is an allegorical history of France.

The Prix Goncourt was given to Francis de Miomandre, for a witty satire of Symbolism: *Écrit sur l'eau*. The "Vie Heureuse" awarded Estaunié's *La vie secrète*, its 5000 francs prize.

POETRY. No striking work here. Ernest Dupuy, the well known biographer of V. Hugo, publishes at last his *Poèmes*, which remind one of the romanticism of Vigny's "Destinées." Jean Ott's *L'effort des races* is a sort of "Légende des siècles" from an ethnological standpoint; the poet sings the deeds of the Huns, Gaels, Normans, etc. Paris inspires Méral's *Poèmes de Paris*, and Phil. Dufour's *Paris pittoresque*. The French Academy has crowned Amiel's *Sonnets* describing the statues and pictures of the Panthéon, the Louvre and the Luxembourg; E. Beauplis's *Italiam. . . . Italiam!* celebrating once more Italy as the mother country of art; and Sylvain Déglantine's *La lyre Malgache*, descriptions, legends, picturesque customs of Madagascar. Other interesting volumes are Anne Osmont's *Nocturnes* (crowned by La Vie Heureuse) and Mad. Cecile Perin's *Les Pas légers*, the light steps of children.

The return to the classical prosody is noticeable. Still the advocates of freedom or the Décadents are by no means reduced to silence. Paul Fort offers another volume, *Ile de France*, of his quaint ballads, quaint both in form and in content, while Paul Drouot, in *La grappe de raisin*, and Micheletis in *Espoir merveilleux* are evidently trying to undo their patron saint Mallarmé.

Two great poets remain to be mentioned: Verhaeren, whose *Mirages de la vie* have created much enthusiasm among his admirers; a great celebration was made in Brussels in his honor, and his friends have tried to secure for him the Nobel prize in poetry; then a posthumous book by Sully-Prudhomme: *Epaves*.

MEMOIRS are still in fashion. The most successful this year have been the *Mémoires de Madame de la Suze*, for the 17th century. For the first half of the 19th, besides the last volume of Mme. de Boigne's *Mémoires* those of the Duchesse de Dino were widely read. In those of Mlle. George, we find a remarkably poetical and tender Napoleon; this seemed somewhat suspicious and it was found out that the *Mémoires* had been altered; they were to be published during the 2d Empire, and Mlle. George thought that she might lose her pension from the government if she did not arrange

things somewhat. For the time of the 3d Republic we have Déroulède's *Nouvelles feuilles de route* (souvenirs of the war of 1870-71); Ed. Birès's *Souvenirs*: Paul Margueritte's *Les jours s'allongent* and Maurice Barrès's *Vingt cinq années de vie littéraire*. Not without interest are the *Mémoires* of Loie Fuller (the inventor of the serpentine dance) with a preface by Anatole France.

Several works in history ought to be mentioned here: A. France's *Jeanne d'Arc*, two fat volumes, full of erudition, but the author's attitude satisfied neither the orthodox, nor the scientific minds; Michelet's pages on Jeanne d'Arc remain the great literary monument of the pucelle d'Orléans. The Comte d'Haussonville gave his last volume of *La duchesse de Burgoyne*, thus completing perhaps the most perfect picture of the society of France in the 17th century. Concerning the Napoleonic era: F. Masson, *Autour de Ste Hélène*, P. Frémeaux, *Les derniers jours de l'empereur*. Then E. Ollivier continues his *Empire libéral*, discussing the always burning question of the cause of the Franco-Prussian War; while F. Loliée publishes his 3d volume of the *Femmes des second empire*: *Eugénie de Montijo*. Why not add Dr. Funk Brentano's, highly entertaining biography of the famous bandit *Mandrin*?

HISTORY OF LITERATURE. Joseph Bédier publishes the first volume of his revolutionary studies on French epics. Langlois writes on *La vie en France au moyen âge*. Saineau enters a new field with his *Argot ancien* (1455-1850); Stronsky, in his great work on Pascal, gives the volume on *Les Provinciales*. Rigal has a well received *Molière*, and Lemaitre an inspiring *Racine*.

Among the 18th century studies we may mention D. Mornet: *Le sentiment de la nature de J. J. Rousseau à B. de Saint Pierre*, Keim's *Helvétius*, and Lachèvre's very interesting publication of documents on *Voltaire mourant*. Mad. Th. E. Ollivier publishes a book on *Valentine de Lamartine*, the sister of the poet. The *correspondence of Beyle* (Stendhal) is also an important book. M. Salomon has an interesting volume on *Nodier*, and the cenacle, while L. Séché's *Hortense Allart de Mértens* contains besides amusing gossip, valuable information about Chateaubriand, Béranger, Sainte-Beuve, G. Sand, and others. The famous *Thérèse Daquin*, the "inconnue" of Mérimée, is the subject of books by Lefèvre and by Lucien Pinvert. Finally regarding this whole period, there is a book called *Le mal romantique* by E. Seillière. Séché and Bertrand have an *Evolution du théâtre contemporain*, with preface by Faguet. Bourget offers a series of literary portraits, Bonald, Taine, Loti, etc., under the title *Sociologues et littérateurs*, and *The Figaro* published in October interesting letters from the mother of Maupassant to Flaubert. Aulard's attack on Taine as a historian has been most discussed.

The death of Arvède Barine (Mad. Ch. Vincens) was a great loss to French letters. Several commemorations took place: The 300th anniversary of the birth of Massillon, the hundredth of Barbey d'Aurevilly, and of Gustave Planche, and the fiftieth anniversary of Brizeux's death. A statue was erected to Rousseau in Ermenonville, and unveiled in October.

The FRENCH ACADEMY has come before the eyes of the public more than usual. Its con-

servative attitude in the events of recent years has called forth many protests, and even proposals to do away with the institution as antagonizing constantly the government that supported her. Faguet recently proposed that the Academicians of the five "Académies" (about 150 men in all) give up their salaries and thus acquire the right of independent thinking. See ACADEMIE FRANÇAISE.

FRENCH OCEANIA (ESTABLISHMENTS IN).

A French colony in the Eastern Pacific comprising a number of islands and groups of islands scattered over a wide area. It includes the Society and Leeward Islands, 637 square miles and 17,361 inhabitants (1902); Marquesas Islands, 492 square miles and 3563 inhabitants; Tuamotu Islands, 270 square miles and 4294 inhabitants; Gambier Islands, 89 square miles and 1381 inhabitants; Tubuai Islands, 110 square miles and 2111 inhabitants; besides smaller islands. Total area, 1618 square miles; total population (1902), 28,710. The principal island in the Society group is Tahiti, 600 square miles and about 10,750 inhabitants. Its chief town is Papeete, 4282 inhabitants in 1900, three-fourths French. Vegetables, coconuts, bananas, oranges, sugar-cane, vanilla, coffee, and tobacco are cultivated. Sugar and rum are produced. In 1906 there were grown on Tahiti 52,703 pounds of cotton. The government encourages the cultivation of Sea Island cotton, to which the Society Islands are remarkably well adapted, but without marked success. The natives prefer the Egyptian variety, which entails far less labor and is just as remunerative. Deposits of phosphates, estimated at 30,000,000 tons and containing from 65 to 90 per cent. pure phosphate, have been found on the island of Makatea, of the Tuamotu group, about 120 miles northwest of Tahiti. Smaller deposits have been found on other islands. A company has been formed in Paris for their exploitation. In 1907 the imports and exports amounted to 3,331,810 and 3,639,954 francs respectively, the trade with France being represented by 404,000 and 449,009 francs respectively. A large portion of the trade is with the United States, New Zealand, and Great Britain. The chief imports are wheat-flour, cotton goods, and metal goods; the chief exports, copra, vanilla, and mother-of-pearl. The colony is under a Governor, assisted by a privy council and an administrative council. The budget in 1907 balanced at 1,522,000 francs. The debt in 1907 was 249,000 francs. The French subvention was fixed for 1908 at 195,400 francs. The Governor in 1908 was J. P. François.

FRENCH SAHARA. The French sphere of influence in the Sahara extends over nearly the whole of the desert, with the exception of the Libyan Desert. The area is roughly estimated at 1,900,000 square miles, and the population at 800,000. A line of posts to guard the caravan routes has been established, extending east and west 2000 miles, from Cape Blanco, on the Atlantic, to the oasis of Bilma, north of Lake Chad. At Cape Blanco there will be a port of call for French steamers. The neighboring waters are rich in fish. The oasis of Bilma, at the other end of the line, has an area of about 175 square miles, produces dates, wheat, fruit, and vegetables, and is inhabited by 2500 people. It is one of the great sources of salt in the Sahara and sends most of the output to the Sudan. The post at Bilma was established in 1908.

FRENCH SOMALILAND. A protectorate, lying on the Gulf of Aden, between Eritrea and British Somaliland, and extending inland 55.9 miles. Area, about 1,800 square miles; population, 50,000. The principal towns are Jibuti, the capital, 11,000 inhabitants (500 Europeans); the port of Obak, 15,000 (2,500 Europeans); and Tajurah, 2000. The coast fisheries are important. The imports are mainly textiles, foodstuffs, and tobacco; the exports, coffee, ivory, gold, and sheepskins. In 1906 4,321 pounds of cotton were produced. In 1907 the imports and exports amounted to 15,855,647 and 23,091,018 francs respectively, the trade with France being represented by 3,950,000 francs of imports and 2,042,000 francs of exports. A large part of this trade is transit, and includes the bulk of the foreign trade of Abyssinia (q. v.), which passes over the railway, 193 miles long, from Diré Dawa, in Abyssinia, to Jibuti. A telegraph line connects Jibuti and Obok with Harrar and Addis Abeba, in Abyssinia, and with Massowah, in Eritrea. The administration is in the hands of a Governor, assisted by a privy council. The local budget for 1907 balanced at 1,158,000 francs. The expenditure of France in 1908 was fixed at 617,500 francs.

FRENCH WEST AFRICA. A vast territory, comprising the colonies of Senegal, French Guinea, Ivory Coast, Dahomey, Upper Senegal-Niger, and the Civil Territory of Mauretania. Its area has not yet been determined. Its total population is estimated at 13,000,000. For particulars respecting areas and populations, products, imports and exports, railways, telegraphs, etc., see under the respective titles. French West Africa is the only French colony to which a special tariff has been accorded. In 1907 the total imports and exports were valued at 94,801,000 and 79,764,000 francs respectively, the trade with France being represented by 43,115,000 francs of imports and 45,285,000 francs of exports. The administration is in the hands of a Governor-General—in 1908, A. W. Merland-Ponty—under whom are the Lieutenant-Governors of the various colonies and the Commissioner of Mauretania. The general budget of the Governor-Generalship is distinct from that of the various colonies. The revenues for the general budget are derived from customs and port dues, and the expenditures are for general services only. The revenues of the separate colonies are derived from the capitation tax, trading licenses, etc., and are devoted exclusively to local expenditure. The expenditure of France on French West Africa in 1908 was fixed at 15,787,940 francs, mostly for the army. The debt of French West Africa amounted in 1907 to 68,949,000 francs. The seat of the Governor-General is at Dakar, Senegal. There is a uniform school system, maintained from the general revenue. The military force, mostly natives, numbers over 9,000.

FRIENDS, THE; or SOCIETY OF FRIENDS, often called **QUAKERS**. A denomination of Christians which had its beginning about 1647 from the preaching of George Fox. There are four bodies of Friends in the United States: the so-called Orthodox, the Religious Society of Friends, to which the name Hicksite is sometimes given by those outside of the denomination, the Wilburite, and the Primitive. They differ chiefly in matters of church administration. The largest branch in point of numbers is the Orthodox, which numbered in 1908 97,836 communicants

and 830 churches. This body has fourteen yearly meetings in the United States and one in Canada. Thirteen of these are combined in a federation known as the Five Years' Meeting. This body met at Richmond, Ind., Oct. 5, 1907, and will convene its next meeting at Indianapolis in 1912. The Orthodox branch has ten colleges under its control, the best known of which are Haverford College for men, Earlham College for men, and Bryn Mawr for women. The Religious Society of Friends had in round numbers in 1908 20,000 members with 183 churches. The society has under its auspices Swarthmore College, together with 13 preparatory and 12 secondary schools. Ten Friends' Homes, partly sustained by endowments, are maintained. During the year a new Monthly Meeting was established at Pasadena, California, which is the first of its kind belonging to this branch of Friends on the Pacific coast. In September the biennial General Conference was held at Winona Lake, Indiana. For the first time since the so-called "separation" fraternal delegates were present from both the Orthodox and Wilburite Friends. There was unusual activity in the philanthropic interests of the society in 1908, especially in temperance work. The Wilburite branch numbered in 1908 4,468 communicants and 38 churches. It has seven yearly meetings, each of which is independent, relations between them being maintained by an annual exchange of epistles. The Primitive body is very small. It numbers 232 communicants and 11 churches. Missions are carried on by the Orthodox branch in 12 countries and contributions are made for the maintenance of 115 missionaries and 200 native workers. Among the institutions maintained by this body are the Friends' Asylum for the Insane, Frankford, Pa.; the Germany Dispensary and Hospital; the Pennsylvania Hospital for the Sick and Indigent; the West Philadelphia Hospital for Women. Homes for the aged, widows, and orphans are also maintained. The official organ of the Orthodox Friends is *The American Friend*, published in Philadelphia. The Religious Society of Friends publish the *Friends' Intelligencer*, also located in Philadelphia.

FRUIT GROWING INDUSTRY. See **AGRICULTURE**.

FRUIT PRESERVING. See **HORTICULTURE**.

GAMBIA. A British colony and protectorate on the west coast of Africa. Area, 3,619 square miles; population (1901), 90,354. The area of the colony proper is 4 square miles, and the population 13,456 (198 white), of whom 7,707 were Mohammedans, 5340 Christians, and the rest pagans. Bathurst, the chief town, had 8,807 inhabitants in 1901. Ground-nuts constitute nine-tenths of the exports. The imports and exports in 1907 amounted to £295,991 and £290,648 respectively, the trade with Great Britain being £155,761 for imports and £25,221 for exports, and with France £58,610 and £238,488. The revenue and expenditure in 1907 amounted to £65,892 and £57,729 respectively. The Governor in 1908 was Sir George C. Denton.

GAME LAWS OF 1908. As regular legislative sessions were held in only a few States—Massachusetts, Rhode Island, New Jersey, Maryland, Virginia, South Carolina, Georgia, Mississippi, Louisiana, Kentucky, Ohio, and Oklahoma—in 1908, the amount of game legislation enacted was much smaller than in the year previous. Game laws were under consideration

in all of these States and also in North Carolina, where a special ten days' session was held, but Kentucky, Mississippi, and Oklahoma made no changes in their game laws. Including Alaska, for which a new law was passed by Congress, the number of States which made changes in their game laws in 1908 was only ten, all except Louisiana being east of the Mississippi River.

In Canada at least six, or two-thirds, of the provinces amended their game laws. Including Canadian bills, and amendments passed by Newfoundland, the total number of new laws was less than sixty, and about half of these were local measures.

Among the novel features of the year's legislation were the act of Congress providing hunting and shipping licenses for Alaska, the first measure of the kind ever passed by the Federal government; the Quebec provision making lumbermen responsible for infractions of the game laws by their employees; and the Massachusetts requirement that the carcasses of deer killed in the protection of crops must be delivered to the city or town clerk on the day of killing.

In British Columbia the Lieutenant-Governor was authorized to set aside tracts of crown lands for game reserves and to make necessary regulations therefor.

The most important changes in close seasons were the prohibition of spring shooting of waterfowl in Northern New Jersey, and shore birds in Rhode Island, and the abolition of summer woodcock shooting in New Jersey. New York, Virginia, and Newfoundland abolished local seasons for rabbits, and substituted therefor a single season throughout the State. Similar action was taken by New York with all its upland game. In New Jersey, Massachusetts, Louisiana, and Manitoba the seasons for various kinds of game were shortened. In several States the close seasons maintained for a period of years for certain kinds of game expired in 1908, but most of the close terms for big game, grouse, and pheasants were extended.

A marked tendency was shown in the legislation of the year to increase restrictions on the marketing of game, especially in Louisiana, Ohio, Virginia, and Newfoundland, which placed further limitations on the sale of game. Ohio for the first time cut off the sale of all game, and Virginia of all upland game birds. The privilege of carrying out a limited amount of game is granted to non-resident licenses by New Jersey and New York.

Resident hunting licenses were established for the first time in Louisiana, Massachusetts, New York, and Nova Scotia, and alien licenses in Alaska, New Jersey, and New York. Non-resident licenses were prepared for Alaska, and those of Louisiana, New York, and British Columbia were increased. South Carolina established a county license in addition to its State license. In Alaska provision was also made for licensing guides and for the issue of shipping licenses for big game. Imitation or loan of the hunting licenses is made a forgery by the New York law.

Important changes in the laws relating to the warden service were made in Louisiana and Nova Scotia. In Louisiana a board of three commissioners was established, with headquarters at New Orleans, and in Nova Scotia a similar board was established composed also of three members. In both cases these boards appoint the wardens and supervise the inspection of the game laws.

An important item was incorporated in the agricultural appropriation bill, setting aside \$30,000 for the purchase of not more than 12,800 acres of land on the Flathead Indian Reservation in Montana for a national bison range, and \$10,000 to cover the cost of fencing.

GARBAGE AND REFUSE DISPOSAL.

The principal change in the collection and disposal of garbage and other city refuse during 1908 was the completion of several garbage or refuse destructors of the British type for cities of the United States. In 1907 in the comparatively small number of furnaces used for this purpose the American type was used almost exclusively. Another change for the better was a slight increase in the recognition of the fact that the collection and disposal of city wastes is an engineering problem which must be entrusted to engineers for solution. In American cities, the collection of garbage, ashes, and rubbish of all sorts is still generally entrusted to contractors, when done at public expense. Otherwise, it is commonly left to private scavengers, under little or no effective public regulation. In Great Britain, municipal collection at public expense generally prevails. Authorities on the subject generally agree that municipal collection should be the rule, efficiency considered, but it is a mooted question whether public or private collection costs the taxpayers the least, the work being equally well done in each case. Disposal of garbage and other city wastes is still on a very unsatisfactory basis in most American cities. The common method of disposal is by dumping on land or in water, at the handiest available point. Between a third and a half of the cities of the United States having a population of 30,000 and upwards have adopted either cremation or reduction for some portion of their garbage, but even in these cities the final disposal of ashes and rubbish is more or less a matter of chance.

While European cities in large numbers are far ahead of American in the disposal of municipal refuse, a large percentage of the refuse of many of them is not burned in their refuse destructors. Instead, large quantities of mixed refuse are dumped or "tipped" in heaps in out-of-the-way places, and some of the best of the mixed refuse, as well as some of the garbage, is plowed into land, either for fertilizing purposes or to improve the texture of the soil. The sixty-odd American cities of 30,000 population and upwards which in 1908 had improved means of garbage disposal were divided about equally between cremation and reduction, but most of the larger cities employed reduction rather than cremation. Reduction was the prevailing method of garbage disposal in New York, Chicago, Philadelphia, Boston, Baltimore, and Cleveland, the latter city having the only municipally-owned reduction plant in the country. San Francisco (before the earthquake), Milwaukee, and Minneapolis afforded the chief examples of cremation, in point of tributary population. The best plants employing either cremation or reduction, when under proper engineering rather than political supervision, give good sanitary results. Cost data for either method of treatment are meagre and unsatisfactory. All the reduction plants save one are privately owned and their financial results are carefully guarded—the more so because, although the grease and fertilizer base derived from the garbage yield a revenue, yet

the company-proprietors almost invariably demand and secure a bonus from the city which they serve. The Board of Public Service of Cleveland, O., publishes physical and financial reports on the operation of the reduction plant owned by that city, but although the figures given are valuable, the financial items are not quite complete. The newer American garbage-burning plants in 1908 were in operation too short a time to yield reliable cost data, and accounts worthy the name have been kept for but few, if any, of the older garbage furnaces. The best of the recent British refuse destructors were scientifically designed furnaces, with forced draft and other devices to secure the high temperatures (1500-2000° F.) without which municipal refuse cannot be properly burned, and with boilers and economizers to utilize these high temperatures.

Similar destructors were put in operation in 1908 to burn a portion of the garbage of Seattle, Wash., and to serve the West New Brighton section of the Borough of Richmond, New York City (see *Engineering News*, Nov. 5, 1906, for description of last-named plant, with results of official tests). Considerable information on garbage and refuse disposal, with reference to New York City, and to foreign practice, and with recommendations for New York, may be found in the *Report of Commission on Street Cleaning and Waste Disposal*, by H. de B. Parsons, Rudolph Hering, and Samuel Whinery of New York City, all prominent engineers, dated Dec. 31, 1907, and addressed to the Mayor of New York (see *Engineering News*, Apr. 23, 1908, for a lengthy abstract).

GARDEN, MARY. A Scotch-American operatic singer. She was born in Scotland, in 1876, and was brought to Chicago in 1882. Her first musical studies were upon the violin and piano, but in 1895 she went to Paris to study singing. In 1902, owing to the illness of one of the singers at the Opéra Comique, she was called upon at short notice, and made her debut singing the title rôle in Charpentier's *Louise*. The following week she was installed as a principal at the Opéra and remained there for six years. On Nov. 25, 1907, she made her first American appearance at the Manhattan Opera House, New York, singing the title rôle in Massenet's *Thaïs* (its first American hearing). She also introduced *Louise*, Debussy's *Pelléas et Mélisande* and Massenet's *Le Jongleur de Notre Dame*, to American opera-goers.

GARDEN CITIES. See ARCHITECTURE.

GARFIELD, HARRY AUGUSTUS. An American educator, became president of Williams College, on Oct. 7, 1908, for which position he had been formally chosen in June, 1907. He was born at Hiram, Portage County, Ohio, on Oct. 11, 1863, the first son of President James A. Garfield. He graduated from Williams College in 1885. He studied law for a year (1886) at the Columbia Law School, and then at Oxford University and the Inns of Court, London, and was admitted to practise at the Ohio bar in 1888. He practised law (as a member of the firm of Garfield, Garfield, and Howe) in Cleveland, Ohio, in 1888-1903, and was professor of politics at Princeton in 1903-08. In 1898-99 he was president of the Cleveland Chamber of Commerce, and from 1899 to 1908 he was chairman of the special commission on the reorganization of the United States consular ser-

vice. Mr. Garfield is the first layman to be president of Williams. His immediate predecessor was Dr. Henry Hopkins (q. v.).

GARY. See IRON AND STEEL.

GARY, FRANK BOYD. United States Senator (Democrat) from South Carolina. He was born at Cokesbury, S. C., on Mar. 9, 1860, attended the Cokesbury Conference School and in 1877 entered Union College, N. Y., but was obliged to leave that institution in his senior year because of ill health. He then took up the study of law at Abbeville, S. C., and was admitted to the bar. In 1890 he was elected to the State Legislature, and he was a member of that body continuously until 1900, having served as Speaker from 1895 to 1900, when he became a candidate for Governor. In 1906 he was again elected to the Legislature. On Mar. 6, 1908, he was elected United States Senator to fill the vacancy caused by the death of A. C. Latimer. His term will expire on Mar. 3, 1909.

GAS. In 1908 the United States Geological Survey issued a report on the gas industry and the production of coal and water gas for the year 1907. This report stated that the statistics for the coal gas production in 1907 were compiled from returns made by 516 companies and by 3892 product ovens. The number of companies showed a decrease over 1905, when the last report on gas was prepared by the Geological Survey, but this was explained as due to consolidations of companies, to the change of plants from coal gas to water gas, and to the change from gas to electricity for illuminating purposes in certain comparatively small towns. The coal gas production in 1907, exclusive of that lost or unaccounted for, was 54,819,685,000 cubic feet as compared with 40,454,000,000 cubic feet in 1905, or an increase of gas sold in two years of 35 per cent. Coal gas, it will be remembered, is prepared by the distillation of coal in retorts, while water gas, on the other hand, is produced by the decomposition of water in the form of steam at intense heat, and then subsequently enriching the hydrogen thus produced for illuminating purposes. The statistics of water gas production showed an increase in the number of companies from 477 in 1905 to 520 in 1907, and the production, exclusive of that lost or unaccounted for, increased from 82,959,228,504 cubic feet to 162,139,874,507 cubic feet. The loss of water gas amounted to 7,505,000,000 cubic feet or somewhat over 7 per cent. of the production.

The average price of coal gas in 1907 was 67 cents per thousand feet, while that of oil and water gas was 95 cents per thousand cubic feet, as it is used more for illuminating purposes.

During the year there was much consideration of gas companies and their methods by public utilities commissions, but less positive progress and results were to be recorded than in previous years. During the year the United States Supreme Court was passing on the constitutionality of the act establishing the 80-cent per thousand rate for the boroughs of Manhattan and the Bronx, and a decision was anticipated early in 1909. The question at issue was as to the confiscatory character of the legislation, and the decisions of the lower courts had been for the most part in favor of the consumer. The use of incandescent lamps for gas lighting continued to extend, and the industry, in the main, was in good condition, except in so far as it was

apprehensive of hostile legislation and restrictions.

BLAU GAS. During the year announcement was made of a new gas available for illuminating, heating, and power purposes named Blau gas after its inventor, a German chemist. Blau gas is a compressed gas mixture where those gases rich in carbon which liquefy under pressure have not been eliminated as in the usual forms of compressed gas, and as these are the most valuable for heating and lighting, it was found that they could be included in a mixture of various liquefied gases which in this state will dissolve large quantities of hydrogen and methane. The gas mixture is prepared by distilling coal at a temperature much lower than that used in making ordinary coal gas and then purifying and compressing the product. The mixture contains the liquefied heavier gases saturated with the permanent gases and is put on the market in steel cylinders, containing from $\frac{1}{2}$ a kilogram to 25 kilograms, a 10-kilogram or medium-sized cylinder containing 22 litres of the liquefied gas being 3 feet in height by 5 or 6 inches in diameter and affording sufficient gas to supply a 50-candle incandescent burner for 480 hours, as compared with 32 gallons of kerosene for an oil lamp of equivalent candle power. The cost is stated at about 15 cents a kilogram. The liquefied gas has a specific gravity of .59, but the gas where liberated is slightly heavier than air. It is especially effective for use in incandescent gas lamps.

GAS ENGINES. During 1908 there was in course of erection at the new works of the Indian Steel Co., at Gary, Indiana (See IRON AND STEEL), the largest power plant ever designed or built for utilizing the waste gases from blast furnaces. The use of gas engines on a large scale in America first was tried at the works of the Lackawanna Steel Co., at Buffalo, and subsequently was taken up in earnest by the United States Steel Corporation and a number of large gas engines were installed in works at or near Pittsburg and at the Illinois works at Chicago. The Gary plant consists of 16 500-ton coke blast furnaces from which are produced daily about 44,800,000 cubic feet of gas, a part of which is used for heating the blast stoves, for raising steam under boilers, and for various auxiliaries, but the major part, 57.5% of the total production, is available for the blowing engines and for the generation of electric power to operate the works. The latter is the most important item, and when all the furnaces are in operation there will be produced for this special object over 200,000 horse-power. This power plant both for its size and the design of the engines is remarkable, and was expected to insure great economies in the operation of the works.

MARINE GAS ENGINES. During the year there was much discussion as to the use of gas engines to propel ships, and some extensive tests were made. Notable among them was the fitting of gas engines and producer to H. M. S. *Rattler*, an old, small British gunboat of 715 cons displacement, and the decision to equip the new magnetic survey yacht of the Carnegie Institution with internal combustion engines of 125 indicated horse-power and a gas producer. The *Rattler* was not a very large craft, being 165 feet in length and of 29 feet beam, but with 500 horse-power suction gas engines and producer, an average speed of 8 to 9 knots, or the same as made before with steam engines

under natural draft, was obtained with one-half the coal consumption and a much smaller engine-room force. It had a single set of vertical Beardmore-Capitaine suction gas engines and producer. The type chosen was a 5-cylinder single-acting suction gas engine and producer of 500 brake horse-power, the cylinders being 20 inches in diameter by 24 inch stroke and operating at 120 revolutions per minute. The advantages of gas engines of large size on ship-board were essentially a saving of one-third in the space occupied by the machinery and a reduction of possibly one-fourth in its weight, as where the engines are heavier the boilers are much lighter than the producers. Furthermore, there would be considerable economy, as not only can greater horse-power at the propeller per pound of fuel be obtained, but a cheaper grade can be used. In addition, there was not needed the same force of stokers and the operation of engines and producers is far simpler and easier. On the other hand, the disadvantages urged were the extreme high temperature of the cylinders with the corresponding effect on valves, the great weight of the moving parts, and the difficulty of making the engines reversing. The gas engine was also said to be lacking in flexibility for the various degrees of service to which a marine engine is submitted. Such mechanical disadvantages as an uneven turning moment and the regulation of the power to variation in the resistance were also brought forward. The disposal of the exhaust from a marine gas engine also presented difficulties and the danger of leaks in the crew were also presented.

GAS, NATURAL. See NATURAL GAS.

GATTI-CASAZZA, GIULIO. An Italian impressario. He was born in Ferrara, Italy, about 1869, and became president of the municipal opera house in Ferrara at the age of twenty-four. In 1898 he became director at La Scala in Milan. Under his direction Wagner's *Nibelungen* cycle as well as Strauss' *Salome* and Debussy's *Pelléas et Mélisande* were first heard at Milan. On Feb. 11, 1908, he became director of the Metropolitan Opera House in New York City.

GAUDRY, JEAN ALBERT. A French paleontologist, died on Nov. 29, 1908. He was born in Saint Germain-en-Laye, on Sept. 16, 1827, and after travelling in 1853-60 in the Orient and in Greece, where he did much paleontological research work, became a professor in the Museum of Natural History, at Paris, in 1872. In 1882 he was elected to the French Academy of Sciences. His publications include, *Recherches Scientifiques en l'Orient* (1855); *Animaux fossiles et géologie de l'Attique* (2 vols., 1862-67); *Animaux fossiles du Mont-Léberon*, with Fischer and Tournouër, and *Enchaînements du monde animal dans les temps géologiques* (1878).

GEBHART, ÉMILE. A French writer, member of the French Academy, died on April 21, 1908. He was born at Nancy on July 19, 1839, and attended the Lycée at Nancy and the École Française d'Athènes. In 1860 he became professor of foreign literature at Nancy and in 1879 professor of the literature of Southern Europe in the Faculty of Letters at Paris. His writings deal chiefly with antiquity, ancient art, and the history of literature. He also contributed to the *Revue des Deux-Mondes*, the *Revue Bleue*, and the *Journal des Débats*.

GEMS. See MINERALOGY: DIAMONDS. For Artificial Gems see under CHEMISTRY, INDUSTRIAL.

GENERAL EDUCATION BOARD. See UNIVERSITIES AND COLLEGES.

GENERAL FEDERATION OF WOMEN'S CLUBS. See WOMEN'S CLUBS, GENERAL FEDERATION OF.

GENERATORS. See DYNAMO ELECTRIC MACHINERY.

GENETICS. See BIOLOGY.

GEOGRAPHICAL SOCIETY, AMERICAN. A learned society for the encouragement of geographical discovery, the dissemination of geographical information, and the maintenance of a place where the means will be afforded of obtaining information, organized in 1852. The society has a house at 15 West 81st Street, New York City. Its membership in 1908 was about 1,400. The President is Archer M. Huntington; Vice-Presidents, D. D. Mills and John Greenough; Corresponding Secretaries, foreign, William Libbey, domestic, Archibald D. Russell; Recording Secretary, Anton A. Raven.

GEOGRAPHIC SOCIETY, NATIONAL. A learned society for the publication of the results of geographic exploration and research, founded in 1888. Its data is published in an illustrated monthly magazine, and it publishes in addition large maps and various books. It maintains a library at its headquarters in Washington, where gold medals are awarded and a series of addresses is given. Its membership is about 36,000. The President is Willis L. Moore, the Secretary, O. P. Austin, and the editor, Hubert H. Grosvenor.

GEOLOGICAL SOCIETY OF AMERICA. A learned society, founded in 1888 for the prosecution and publication of studies in geology. It had in 1908 298 fellows. The President is Samuel Calvin; Treasurer, Wm. Bullock Clark; Editor, J. Stanley Brown; Secretary, E. O. Hovey, American Museum of Natural History.

GEOLOGY. Progress in geology during 1908, as in the preceding year, was based upon a wide activity in research and descriptive work, rather than upon signal gains along any particular line. Material additions were made to the literature of each department, out of which only the more important investigations have been selected for discussion here, though they may be considered as fairly representative of the general trend of the science.

DYNAMICAL GEOLOGY. The investigation of radio-activity in relation to the physics of the earth's crust has continued to attract attention. In the review of geology for the year 1907 an account was given of an examination of rocks and minerals from various parts of the world by R. J. Strutt, who found the average quantity of radium present to be many times in excess of that necessary to maintain the average temperature gradient of the crust. From this surprising result, which, if strictly interpreted, would overturn previous conceptions of a cooling earth, it was concluded that the surface rocks are not to be considered as affording an average, but that the radium is concentrated in the outer portion, while the earth's interior may be relatively free from the element. With the almost ceaseless outflow of energy that characterizes radium, and the all but eternal source of it afforded by uranium, it was believed that there can have been only a small diminution in the radio-activity of the earth during so long a period as one hundred

millions of years. J. Joly continued the investigations of Strutt by examining especially the deep-sea deposits. In the characteristic materials known as globigerina ooze, radiolarian ooze, and the red clay brought up from great depths, the radio-activity was found to be greater than that shown by rocks from the land surface. While recognizing that this new source of heat was an important factor in the problem, Prof. Joly believed that former theories regarding a cooling earth were not to be superseded. On the other hand the discovery affords a means of reconciling the physical and geological views of the matter on the Kelvin hypothesis. While Lord Kelvin was not inclined to concede a greater age for the earth (estimated from the physics of a globe cooling by radiation) than forty or fifty millions of years, it is now possible to lengthen the time to twice that amount. It may be said that geologists have generally been in favor of a longer interval than Kelvin's estimate. According to Joly the loss of heat by radiation during the early period of the earth's history was greater than the effect of the radio-thermal activity. From such a state conditions have tended to converge, the rate of loss by radiation diminishing while the radio-thermal output remained fairly constant, until the existing distribution of temperature has been attained. The radio-thermal supply may now nearly balance the loss by radiation.

In discussing the influence of radium upon the geology of the globe, G. F. Becker calls attention to the distribution of the chemical elements in the universe as revealed by the spectroscope. It is found that the elements of highest molecular weight are the latest to be formed and are confined to cooling stars or planetary bodies, while those of the lowest molecular weight are present in nebulae and bodies at a high temperature. This indicates progressive evolution in the formation of the elements. A new calculation of the age of the earth based on the hypothesis of a globe not of uniform initial temperature, as assumed by Kelvin, but one of which the initial temperature increases directly as the distance from the surface, gives a result of sixty millions of years. The present surface gradient of a globe under such conditions should be 1° C. in 42.2 meters, if influenced by cooling alone. Radio-activity may have a value of about one-tenth of that amount. The total heating effect of the radium present would be independent of its distribution, but it is considered that the uniformly radio-active shell is less than 10 kilometers thick. The source of uranium and its disintegration products, including radium, is in the granitic rocks, which are probably superficial.

The peculiar topographic feature represented at Cañon Diablo, Arizona, received an explanation after a study by G. P. Merrill. It consists of a crater-like depression in a region of horizontally-bedded sedimentary rocks which are free from evidences of volcanic activity. The crater is 4,000 feet in diameter and 500 feet deep. The surrounding strata show a strong outward dip for some distance and then regain their normal disposition. As there are no volcanic materials in the vicinity, the crater could hardly have been formed by a subterranean volcanic explosion and the only possible explanation is that it resulted from the impact of a gigantic meteorite. A meteoric mass of sufficient size to produce the cavity would be unique, and an

attempt has been made to locate it by exploration with the drill. Up to the present nothing more than fragments have been found. The energy developed by the impact may have been sufficient to destroy the mass in great part.

The growth of coral reefs, as exemplified by the Great Barrier of Australia, was under recent investigation. The development of an individual reef proceeds in a regular manner. If the reef reaches the surface with its axis along the prevailing direction of the winds, then the reef endures, but if across the wind its extremities, are produced backward, forming first a crescent, then an oval, later a horse-shoe and finally an oval enclosing a lagoon. Subsidence at this time may arrest development or rejuvenate the reef. In quiescence the lagoon walls broaden, the lagoon fills with sediment and the atoll is converted into a cay. The view of Darwin as to the growth of coral reefs upon a subsiding floor was upheld by the writers of the paper,—C. Hedley and T. Griffith Taylor,—who stated that the Queensland coast shows evidence of sinking and that the outward face of the reef shelves off abruptly.

GLACIAL GEOLOGY. A study of the Niagara gorge was made by J. W. W. Spencer with a view to determining the rate of its excavation by the recession of the falls. It has long been recognized by geologists that the gorge affords a basis for estimating one of the great divisions of geological time—the Post-Glacial period. As far back as 1845, Sir Charles Lyell prepared an estimate of the age of the falls, which he showed must have come into existence since the drift period. Assuming a uniformity of rate and conditions for the excavation, he held that the length of the gorge divided by the amount which the falls receded up-stream each year would give a measure of the time. This he estimated roughly at 35,000 years, but recognized the uncertainty of some of his data. Much additional information has been secured since Lyell's visit. An important factor, but a variable one, was recognized in the existence of a former river channel that is exposed at the whirlpool; the channel is drift-filled and would necessarily offer less resistance to the wearing action of the river than the hard rocks through which its course lies above the whirlpool. Spencer obtained soundings below the falls which show that a basin 192 feet deep exists. Below the basin the river shallows to 86 feet at the Cantilever Bridge, due to the filling up of the channel after the falls have passed up-stream. According to Spencer's calculation, the average recession of the falls over a period of 63 years, from 1842 to 1905, has been 4.2 feet per annum. The rate of retreat is not uniform, since the contour of the falls changes gradually from an angular notch to a broad curve when there is little recession for a time. As a result of his investigations, Spencer placed the age at 39,000 years. Some interesting statements are made regarding the varied history of the region during relatively recent geological times. While the present system of the Great Lakes and connecting rivers date from the retreat of the continental glaciers, it has undergone great changes at different periods in consequence of earth movements and variations of water level. When the waters of Niagara first flowed into the basin of Lake Ontario they had a fall of only 35 feet, since the lake then stood at a high level marked by its uppermost beaches. Niagara river was

then fed only by the overflow of a comparatively small lake occupying the lowest depression of the Erie basin. It had only 15 per cent. of its present volume. The drainage of the upper Great Lakes instead of passing through Lake Erie was discharged through a gap now represented by Lake Nipissing and the Ottawa river. This drainage system was interrupted by subsidence of the Lake Ontario basin and closing of the gap from Lake Huron into the Ottawa river, and a fresh channel was opened from the southern end of Lake Huron into Lake Ontario through a valley now covered up by drift. Further earth movements led in time to the closing of this outlet, so that the waters of Lake Huron were forced to pass out through Lake St. Clair and the Detroit river into Lake Erie. Thus, at length, Niagara received the over-flow of the Great Lakes. The capture of this discharge by the Niagara River is estimated by Spencer to have happened 3,500 years ago, when the falls were at Foster Flats. The excavation of the gorge from Queenston to Foster Flats, which was performed while the river received the drainage from Lake Erie alone, extended over a period of about 35,500 years.

In a paper on the Permian ice age, Prof. W. M. Davis called attention to the occurrence of glaciated areas in widely separated regions, including South America, Australia, India, and South Africa. From this fact it is argued that an explanation of the climatic conditions is not to be found in a possible displacement of the earth's axis. The present limitation of precipitation, for the South African glaciated area at least, to the warmer season is a further feature that cannot be overlooked. The full explanation of the problem involves not only a moderate reduction of temperature, but so strong a reduction that snowy precipitation may occur in the warmer season, or a more moderate reduction with a change of the season of precipitation from the warmer to the cooler part of the year. Under the present understanding of atmospheric circulation, the first of these alternatives seems the least puzzling.

Discoveries of human remains and crude implements of supposedly early date are reported from time to time from excavations in the Glacial deposits. The evidences bearing upon the antiquity of man in America found up to the present time, however, are not of decisive weight, and the best opinion, geological as well as anthropological, seems to be in accord that the remains and works of early man which have been unearthed belong to a much later period than the primitive types uncovered in the caves and Glacial beds of Europe. In a recent paper A. Hrdlicka gave his conclusions from an examination of a series of specimens including most of the remains supposed to be of established antiquity. According to this authority, the bones and skeletons closely resemble those of the modern Indian. The opinion was also expressed that America was peopled from the Old World, and that the migration could not have taken place until after great multiplication of the human species and the attainment on their part of some degree of culture. In regard to the latest discovery of the "loess" man in eastern Nebraska, Hrdlicka finds nothing that could not be explained as well on the assumption that the bones are comparatively recent. The Gilder mound in which the remains were found is situated just north of Florence along the Mis-

souri river. As described by E. H. Barbour, two distinct layers of remains existed in the mound, the lower containing five skulls in a layer of packed clay or loess at a depth of four or five feet and the upper three skulls and many bones of a more advanced man. The lower bones are described as showing evidences of wear by water action and gnawing by animals. The mound has also been examined by B. Shimek, who states that the remains are not in undisturbed loess, as first thought, but probably found their way into the mound by intrusion, having been carried down by water or by burrowing animals from the burial level.

STRATIGRAPHICAL GEOLOGY. The difficult problem presented by the Pre-Cambrian formations, which was recently under consideration by a committee of American and Canadian geologists, as reported in the review of geology for 1907, was further elucidated by C. R. Van Hise. After summarizing the present state of knowledge concerning the Pre-Cambrian rocks in the different regions, Van Hise advocated a dual classification based on physical features as the most satisfactory. The terms Archean and Algonkian are considered to have precedence and are to be preferred by reason of their clear definition and general applicability. Under Archean is grouped the basal complex, composed dominantly of igneous, largely volcanic, rocks, with which sediments are sparingly associated. At the time of their formation it is believed that the physical conditions on the globe were not yet favorable to the extensive deposition of sedimentary strata, like those laid down in subsequent periods. They are characterized, also, by more intricate structures (due to compression, folding and faulting) than the Algonkian rocks. The latter are prevailingly sedimentary and seem to have been deposited under conditions essentially the same as those prevailing at the present day. Their field occurrence can be worked out according to ordinary stratigraphic methods, which are only rarely applicable to the Archean formations. Whether or not the two divisions are paralleled by corresponding life groups can not now be stated, but if a dual zoic division should appear desirable the terms Archeozoic and Proterozoic are recommended. Another plan that can be adopted is to employ a single life term for the two physical divisions, in which case Proterozoic may be used.

F. D. Adams has given the results of a careful study of the Grenville series over an area of 4,200 square miles in eastern Ontario. The field lies on the margin of the Laurentian protaxis, north of Lake Ontario and east of Lake Huron. The series there consists of limestone, mostly of crystalline character, but grading into fine-grained, blue, less metamorphosed limestone, acidic gneisses, and schists, the whole representing a sedimentary accumulation of enormous thickness. In one section made across the prevailing direction of strike of the series, the measured thickness exceeded 90,000 feet, or nearly 18 miles. The Grenville thus contains the greatest development of Pre-Cambrian limestones in North America. It has also a wide areal distribution, spreading over a region of 83,000 square miles and including representatives in the Adirondacks and possibly on the shores of the Hudson Straits. The Pre-Cambrian limestones of New Jersey and the Hudson Highlands are probably of Grenville age. In regard to the stratigraphy of the series, Adams

finds evidence of the existence of two unconformable portions. It is concluded, however, that the Hastings series is a less metamorphosed phase of the Grenville, into which it seems to grade, and not a distinct group, as held by Miller and Knight. Sufficient knowledge has not yet been obtained to permit a correlation with the Huronian strata farther west.

ECONOMIC GEOLOGY. A map of the coal fields of the United States, published by the U. S. Geological Survey, embodied the details of new discoveries and more precise information regarding the older fields. For the first time the brown coal or lignite beds in the river basins of Colorado, Montana, Wyoming, and North Dakota are represented with a degree of accuracy. A new classification of coals is adopted, wherein two additional grade—semi-anthracite and sub-bituminous—are recognized, making six in all. Semi-anthracite is intermediate between anthracite and semi-bituminous, while sub-bituminous is the name given to black lignite intermediate between bituminous and lignite. Of great interest is the information concerning the available supply of coal in the country, to which so much attention has been given in discussion of plans for the conservation of the resources of the United States. The area of the more accessible fields is stated as 327,596 square miles, and their estimated content of coal easily available for mining at 2,004,000,000,000 tons. In preparing the estimate of tonnage, certain limits of depth and thickness of the seams are recognized, based on actual mining conditions abroad, especially in Belgium. The limit of depth is 5,000 feet for coal and 3,000 feet for lignite. The minimum thickness is fixed at 20 inches for coal and three feet for lignite. In addition to the quantity above given, there is an estimated supply of 1,153,000,000,000 tons of coal accessible with difficulty. The total output of coal in the United States, including the amount wasted in mining, up to Jan. 1, 1908, was 10,218,000,000 tons. If the rate of consumption increases in the future on the same scale as in the last fifty years, the supply of easily accessible coal will be exhausted before the middle of the next century.

That our coal beds have originated from organic materials, of chiefly vegetable nature, is no longer questioned by geologists. Yet it can not be said that there is the same unanimity of opinion regarding the processes that determined the vast accumulations of plant remains at certain periods in the history of the earth, or the various stages through which the plant materials passed in the change to coal. A summary of recent progress in the study of coal formation, prepared by David White, shows that much is being accomplished toward clearing up the different problems by refined methods of research. Opinion is still divided as to whether the coal-forming vegetation grew in place in the manner of peat bogs and swamps of the present day, or was brought together in deltas and littoral basins from some foreign, though probably nearby, source. Both theories may be applicable under the variable conditions of occurrence. The transformation of vegetable matter to coal is accompanied by a loss of oxygen and hydrogen and is accomplished in the first stage by a process of fermentation under the influence chiefly of micro-organisms, mostly bacteria. These penetrate into the cells of the woody structure and decompose all the softer parts, leaving only the more resistant materials like the cuticle, spore envelopes, and seeds im-

mersed in a dark sub-gelatinous mass. The bacterial decomposition may progress until the vegetable tissues are wholly changed into the gelatinous substance. This stage takes place always under water, whereas if there is access to air the vegetable material will be converted into humus or be completely destroyed by oxidation. The further conversion of the decomposition product, which is of the nature of peat, results from devolatilization under dynamic influences, such as pressure of overlying sediments, thrust movements in the strata, and intrusion of igneous rocks. While the succession from peat through lignite to bituminous coal and finally to anthracite may be the normal outcome of dynamic action on a uniform material, there are some authorities who maintain that the differences between the groups of coals are conditioned rather by the original character of the ingredients and the extent of the initial decomposition. Channel coals and splints, it is known, differ from the other coals by a relative scarcity of woody tissue, while they contain on the other hand a large proportion of spores and pollen grains. Bog-head coals, also, are characterized by remains of the thalli of various gelatinous micro-algæ, which in some cases make up nearly the entire mass. The presence of these organisms seems to be peculiar, as well, to many oil-shales of the older rocks and they have been the source, perhaps, of much of our petroleum and natural gas.

GEORGE JR. REPUBLIC. A successful experiment in practical philanthropy, begun in 1895 at Freeville, New York, by William R. George. Its objects are: "To prevent crime, to develop character, and promote good citizenship." The government of the Republic is modelled upon the government of the United States and is presided over by a President, who is assisted by a President's Cabinet. Practical affairs of the Republic are administered by citizens under the supervision of the officers. Each citizen works five hours a day and attends school five hours a day. The school curriculum includes a college preparatory course. The support of the Republic is practically from voluntary contributions and its affairs are conducted by the George Jr. Republic Association, which has about 1,400 members. The Republic is constantly filled to its capacity, having about 160 boys and girls, and a waiting list nearly equal to that number. In the property occupied by the Republic there are 350 acres with 30 buildings, including cottages, shops, and barns.

GEORGIA. One of the South Atlantic division of the United States, and one of the thirteen original States. Its total area is 59,265 square miles, of which 540 square miles is water surface. The population in 1900 was 2,216,331, of whom 46.7 per cent. were colored. The Federal estimate of the population in 1908 was 2,519,514. Local estimates of the population of the largest cities in 1905 were: Atlanta, 125,000; Savannah, 70,000; Augusta, 45,000; Macon, 40,000.

MINERAL RESOURCES. In Georgia there was produced in 1907, 444,114 long tons of iron, valued at \$837,102; of coke there were produced 74,934 tons, to the value of \$315,371, or a total value of iron ores and coke of \$1,152,473. The iron produced in 1905 amounted to 411,230 long tons. Among other metallic and mineral products for 1907 were the following: Coal, short tons, 362,401, valued at \$499,686; sand and

gravel, short tons, 226,290 tons, valued at \$81,991; clay products were produced to the value of \$2,490,237; sand-lime brick, \$89,582. This State is surpassed only by Vermont in the quarrying of marble. In 1907 the output of stone, including limestone, granite, and marble, was valued at \$1,745,638. Talc and soapstone were produced to the value of \$11,473; glass sand, 4,800 tons, valued at \$4,800; lime, 18,349 tons, valued at \$70,826; ochre, 5,600 short tons, valued at \$57,100. Georgia is one of the three important States in the production of bauxite, while the production of asbestos in the State, together with that produced in Virginia, constitutes two-thirds of the output of the country. There was produced in 1907, asbestos, natural and Portland cement, bauxite, barytes, fullers' earth, mica, graphite, pig iron, pyrite, precious stones, copper, and lead to the value of \$1,501,361. Gold was produced in 1907 to the value of \$64,800, from 3,135.09 fine ounces. There was mined in the State 864 fine ounces of silver, valued at \$570. The value of the mineral waters produced in the State in 1907 was \$28,120. The total value of the mineral production for that year, including all those mentioned above, was \$7,798,665. According to figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$6,541,003, as compared with a value in 1906 of \$8,927,361.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in 1908 were as follows, according to figures of the United States Department of Agriculture: Corn, 53,750,000 bushels, valued at \$44,075,000 from 4,300,000 acres; winter wheat, 2,208,000 bushels, valued at \$2,672,000 from 240,000 acres; oats, 5,160,000 bushels, valued at \$3,715,000 from 300,000 acres; rye, 122,000 bushels, valued at \$152,000 from 14,000 acres; rice (rough), 87,500 bushels, valued at \$195,375 from 3,500 acres; potatoes, 780,000 bushels, valued at \$858,000 from 10,000 acres; hay, 152,000 tons, valued at \$2,181,000 from 87,000 acres; tobacco, 2,705,625 pounds, valued at \$1,946,969 from 2,575 acres. The acreage and production of corn was slightly less in 1908 than in 1907, when the figures were respectively 4,426,000 acres, and 57,538,000 bushels. There has been a great increase in the acreage of corn in the State since 1900, while the acreage devoted to rice has greatly decreased, owing to the general decline of the rice industry along the Atlantic coast, following its rapid development in Louisiana and Texas. Cotton is the most valuable agricultural production of the State. In 1908 the estimated production was 1,844,000 bales, which was a considerable increase over the figures for 1907, 1,667,866 bales. Other valuable crops of the State are peanuts, sweet potatoes, and fruit. Farm animals on Jan. 1, 1909, numbered as follows: Horses, 140,000; dairy cows, 311,000; other cattle, 680,000; mules, 241,000; sheep 258,000; swine, 1,615,000. All varieties have increased considerably in numbers since 1900. The estimated value of the wool clip in 1908 was \$189,000.

MANUFACTURES. The progress of manufacturing in Georgia from the census of 1900 to the special census of 1905 was very notable. The latter census, which included only factories, showed 3,219 such establishments, with \$135,211,551 of invested capital, an average of 92,749

wage-earners, and products valued at \$151,040,455. These four items were, respectively, 6.8, 70.5, 11.3 and 59.8 per cent. greater than the corresponding items for 1900. Of the wage-earners, 12,640 were women at least 16 years of age, and 7,295 were children under 16, these two classes of laborers having increased, respectively, 25.5 and 17.2 per cent., 1900 to 1905, while the number of men employed increased only 8.6 per cent. The leading industries, with the value of products of each in 1905, were as follows: Cotton goods, \$351,174,248; lumber and timber products, \$14,435,563; cottonseed oil and cake, \$13,539,899; fertilizers, \$9,461,415; flour and grist mill products, \$8,178,926; turpentine and resin, \$7,705,643; planing mill products, \$6,618,544; foundry and machine shop products, \$5,587,811; and railway shop work, \$4,775,109. The industry showing the greatest development was the manufacture of cotton goods, in which Georgia now ranks fifth. In this industry there were in 1905 103 establishments, \$42,349,618 capital, and 24,130 wage-earners, an increase over 1900 of 75.3 per cent. in capital, 32 per cent. in wage-earners, and 90.6 per cent. in the value of products. The increase in the value of the lumber and timber products between the two censuses was 25.3 per cent. About 90 per cent. of the total value came from yellow pine, 6.8 per cent. from cypress, and the remainder from oak and poplar. In the manufacture of cottonseed products, Georgia ranked second in both 1900 and 1905. In this industry the number of establishments increased from 43 in 1900 to 112 in 1905, and the value of products increased 67.9 per cent. The value of fertilizers during the same time increased 181 per cent. Georgia ranked first in the production of turpentine and resin in 1900, and second in 1905. During this period the value of the products fell 5 per cent. Nevertheless in 1905 Georgia produced 9,542,316 gallons of spirits of turpentine and 1,104,968 barrels of resin, or 31.1 and 31.5 per cent., respectively, of the total for the United States.

EDUCATION. In 1906, the last year for which statistics are available, the school population numbered 729,000. There were enrolled in the public schools 307,494 white and 208,774 colored pupils, while 199,311 white and 119,430 colored were in average attendance. The number of schools for whites was 4,713, and for colored, 2209. The white teachers in the State numbered 7,095 and the colored, 3,457. There has been a marked improvement in the last two or three years in the school buildings and equipment in the State. The compulsory education law, which went into effect in 1908, was attended with excellent results. The Legislature in 1906 made provision for district agricultural high schools, and in the work of these schools excellent results have been attained.

FINANCE. The statement of the Treasurer showed a balance Jan. 1, 1908, of \$820,740.17. The receipts for the first nine months of the year were \$3,688,510.49 and the disbursements, \$4,127,695.03, leaving a balance Sept. 30, 1908, of \$301,555.03. The principal receipts were from the general tax, rent of the Western and Atlantic Railroad, hire of convicts, and the railroad tax. The principal disbursements were for common schools, pensions, interest on debt, and purchase of bonds.

CHARITIES AND CORRECTIONS. Many important measures relative to charities and corrections were passed by the Legislature of 1907. The

establishment of a municipal farm for persons convicted of minor misdemeanors, and juvenile offenders, was authorized. An appropriation of \$25,000, of which \$1,000 was available in 1908, \$12,000 in 1909, and \$12,000 in 1910, was made for the establishment of a State Sanitarium for Tuberculosis; children's courts were established as branches of the superior courts and a parole or conditional pardon system was put into effect. A sweeping change was offered in the penal system of the State by a law which puts an end to the leasing of convicts to private individuals and corporations, and provides that after April 1, 1909, all convicts, both for felony and misdemeanors, shall be worked by the counties on the public roads, or by the Prison Commission on the State Farm property. Provision is made for the manufacture by convicts of supplies for State institutions, but otherwise their labor is not permitted to come into competition with other skilled labor. The Prison Commissioners are required by this law to visit the county convict camps once in six months for thorough inspection, and four inspectors in addition are provided for. For the State Sanitarium an additional appropriation of \$15,000 was made available in 1908, and \$30,000 in 1909. For the Soldiers' Home an additional appropriation of \$2,000 available in 1908, and \$3,000 in 1909, was made. The sum realized from part of the property is to be used in maintenance and improvements. Charity Organization Societies were established during the year in Rome, Columbus, and Augusta.

POLITICS AND GOVERNMENT. The prohibition law of 1907 went into effect throughout the State on January 1, 1908. Efforts were made to secure injunctions to prevent the operation of the law in Atlanta, pending litigation, but Judge Newman of the United States Circuit Court refused to grant such an injunction. Several difficulties in the enforcement of the law occurred during the year, and in the cities of the State, generally speaking, but little attention is paid to the law as far as the sale of beer is concerned. "Locker clubs" are prevalent. Except in Savannah, however, the open saloon is eliminated. The most important event in the political history of Georgia in many years was the passage at a special session of the Legislature of a bill which ended the convict lease system in the State, following the declaration of the State convention that nominated Joseph M. Brown for Governor. This act was signed by Governor Smith on Sept. 30. By the terms of this measure it is provided that the leases of convicts, which expire on Mar. 31, 1909, are not to be renewed, and that, after that date the Prison Commission "may use such remaining convicts in such a way as in their discretion they may deem for the best interests of the State"; this, however, to apply only to those convicts remaining after the counties have exercised their option of taking their pro rata part of the State's convicts for use upon the public works. Already it is assured that the county demand will far exceed the total number. The abuse of this system has long been a scandal to the State and its abolition, demanded by strong public opinion, was received with great satisfaction. The State will put practically the entire body of its convicts upon the public roads after April 1, 1909. See PENOLOGY.

CONVENTIONS AND ELECTIONS. In the Democratic primary elections held on June 3 to choose a

successor to Governor Hoke Smith, Joseph M. Brown defeated Gov. Smith, who was a candidate to succeed himself, by a majority of over 20,000. The defeat of Gov. Smith was generally attributed to his attitude toward the enforcement of the prohibition law, and to the opposition of the business and railroad interests of the State on the one side and to active antagonism of many of the extreme element on the other because of his alleged failure to carry out election pledges of the previous campaign. Mr. Brown was dismissed from the office of Railroad Commissioner by Gov. Smith. The Independence party, on Aug. 6, nominated Yancey Carter for Governor. In the State election held on Oct. 7, Brown was elected over Carter by a majority of about 75,000. Measures disfranchising negroes were carried. The Democratic State Convention met on June 23, and elected delegates to the National Convention. These were instructed to vote for William J. Bryan. At this convention Joseph M. Brown was formally nominated for Governor. There were two State conventions of the Republican party. The Republican State League, which was opposed to President Roosevelt, met on May 11, and elected four negro delegates, who were instructed to vote for Senator Foraker for President. The regular Republican convention met at Macon on May 14, and passed resolutions endorsing President Roosevelt's policies, but refused to instruct the delegates to vote for any particular candidate. In the national election on Nov. 3, William J. Bryan received 72,350 votes, William H. Taft 41,692, and Thomas E. Watson (Socialist) 16,965. The Republican vote showed an increase over that cast at the election of 1904 of about 17,000, or nearly 50 per cent.

In the election held at Atlanta on Dec. 2, James G. Woodward, the regular Democratic nominee, was defeated by Robert F. Maddox, an independent candidate put forward by a committee of citizens. About 12,000 votes were cast, and Maddox won by a majority of about 3,500.

OTHER EVENTS. A fire in Atlanta on May 8 destroyed property valued at \$1,250,000. Two business blocks were burned. Floods caused great damage in the State in the latter part of August. In Augusta alone the loss is estimated at \$1,000,000, with the loss of several lives.

STATE OFFICERS: Governor, Hoke Smith; Secretary of State and ex-officio Com'r of Public Lands, Philip Cook; Treasurer, R. E. Park; Comptroller and ex-officio Com. of Insurance, W. A. Wright; Adjutant-General, A. J. Scott; Attorney-General, Jesse C. Hart; State School Commissioner, Jesse M. Pound; Commissioner of Agriculture, Thos. G. Hudson—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Wm. H. Fish; Associate Justices, Horace M. Holden, J. H. Lumpkin, M. W. Beck, Beverly D. Evans and Samuel C. Atkinson; Clerk, Z. D. Harrison—all Democrats.

The State legislature of 1908 was composed of 44 Democrats in the Senate and 181 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

GERMAN BAPTIST BROTHERN. See BROTHERN IN CHRIST, CHURCH OF.

GERMAN EAST AFRICA. A German protectorate, between British and Portuguese East

Africa. Area, 365,600 square miles; population, 7,000,000. On the coast live 10,000 Arabs, Syrians, and East Indians. In 1907 there were 2,629 whites (1,656 Germans). The population of the principal towns in 1906 was estimated as follows: Dar-es-Salaam, the capital, 24,000; Tabora, 37,000; Ujiji, 14,000; Tanga, 5,680; Bagamayo, 4,978; Kilwa, 4,477; Lindi, 3,500; Pangani, 3,200; Iringa, 2,500. Government schools have about 3,200 pupils; mission schools, 16,500. Gold, copper, iron, lead, coal, salt, mica, garnets, agates, topazes, moonstones, etc., are found. In 1908 a rich gold deposit was discovered at Kirondabach, in the Wembre steppe, to the north of the Central East African railway now in construction. The forests, both of the coast and highlands, contain many valuable woods. The natives have large plantations of maize, pulse, and bananas, and rear large herds of cattle, sheep, and goats. The Germans have established plantations of coconuts, vanilla, coffee, cacao, tea, sugar, tobacco, rubber, cotton, and other vegetable fibres. The cotton production in 1907 was 510,679 pounds. The imports and exports in 1907 amounted to 23,806,000 and 12,500,000 marks respectively, against 23,153,000 (11,843,000 from Germany) and 10,995,000 (5,257,000 to Germany) marks in 1906. The principal imports are cotton and iron goods, rice, and beverages; the principal exports, rubber, hides and skins, sisal fibre, copra, wax, coffee, ivory, cotton, animals, copal, and sesame. At the end of 1907 there were 210 miles of railway and 1,500 miles of telegraph. The budget for 1908-9 balanced at 41,838,250 marks, of which 4,482,791 was an Imperial subvention. The military force in 1908 numbered 2,782 (2,510 natives). The Governor in 1908 was Baron von Rechenberg.

HISTORY. On Feb. 18, Herr Dernburg, Minister for the Colonies, in the course of his speech on colonial affairs, said that the condition of the natives in German East Africa was far from satisfactory. He declared that it was necessary to improve the judiciary in order to insure fair treatment of the natives, and he announced the appointment of a special commission to study their physical and mental capacities. As to Indian traders in the Colony, he said that they ought not to be excluded because they promoted the commercial development. He condemned the practice of the planters in pressing the natives into their service, and quoted a report to the effect that "it differed little from slave hunting on the Congo." The need of reforming the system of hiring labor was imperative, but still more important to the interests of the Colony was the creation of adequate means of transportation and communication.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. A religious denomination, organized in 1840. It is a type of the State Church of Prussia, which represents a union of the Lutheran and reformed elements. The strength of the church is greatest in the Central and North Central States. In 1908 it numbered 237,321 communicants, 1,283 churches, and 1,007 ministers. In the denomination there are over 115,000 Sunday School Scholars. The property of the congregations is valued at about \$10,000,000. The publications of the church were formerly printed in the German language, but to meet the rapid Anglicization of the children of the church, books and periodicals are now published in English. Foreign missions are

actively carried on, and about \$24,000 is expended each year for this purpose. In 1908, \$22,826 were spent in domestic missions. The institutions of learning supported by the church include the Pro-Seminary at Elmhurst, Ill., and the Eden Theological Seminary at St. Louis, Mo. Charitable institutions are maintained for orphans, superannuated ministers, and for the widows and orphans of deceased ministers and teachers. There is a large Deaconess' Home at St. Louis, Mo. The official organs of the church are *Der Friedensbote*, and *The Messenger of Peace*. Several other periodicals are issued.

GERMAN LITERATURE AND DRAMA.

Reviews of the year's literary production in Germany are instructive in many points. Were the critics to be asked how many of the works recorded to them were remembered after a twelve-month, the reply would be discouraging to the authors. For while German literature to-day is teeming with intellectual suggestion, it seems to lack the emotional sincerity and imaginative vitality that create lasting impressions. The statistics of the book-market, too, teach valuable lessons. Only seven of the books of 1907 reached ten editions within a year and only nine of 1908. Only two of the great successes of 1907 continued to be reissued the following year. None of the seniors like Paul Heyse, Adolf Wilbrandt and Wilhelm Jensen attained that mark of success, but Peter Rosegger and Julius Wolff figured as rivals of their younger colleagues. Neither were books by the ultra-radical wing of the modern school among those frequently reissued. All this tends to show, that unless it is misguided by illegitimate advertising or by a sensational interest, the taste of the German book-buyer is likely to be sound.

DRAMA. Dramatic production presents similar features. With the exception of Wildenbruch's *Rabensteinerin*, no plays of 1907 seem to have much vitality. Yet Sudermann's one-act play *Rosen*, like his *Morituri* a collective title, were of a quality to reconcile one with the author of *Stein unter Steinen* and *Das Blumenboot*, and at least one of them. *Die ferne Prinzessin* had in it an element of popularity. Gerhart Hauptmann's *Kaiser Karl's Geissel*, a play founded upon the aged Emperor's passion for a young heathen hostage, likewise failed to rouse either human sympathy or literary interest. It is safe to infer that the authors have not so materially changed since their early successes, as their audiences. Being an effective vehicle for the problems of the period, the drama is an even better barometer of the varying tendencies and fashions of literature than the novel, and it would be useless to deny that the present time is a return to older standards rather than a revolt against them. Twenty years ago the German drama was the mouthpiece of a revolutionary young generation. If German authors to-day continue to cultivate the drama until its yearly output almost equals that of fiction it is likely that commercial considerations will affect their choice.

An event which never fails to stir up controversy is the awarding of the Schiller prizes. The royal prize, an institution since 1859, was last carried off by Wildenbruch in 1896. No candidate fulfilling the requirements in 1902, there were two prizes of 6,800 marks to be awarded this year. They went to the Austrian Karl Schönherr for his peasant drama *Erde*, and to the Prussian Ernst Hardt, for his Tristram

drama *Tantris der Narr*. There is some irony in the fact that the people's Schiller prize of 3,000 marks, which five years ago grew out of a spirit of protest against the royal award, was also given to Ernst Hardt and for the same Tristram play! Among the voices raised against the decision of the judges is that of Prof. Max Koch, who claims that Hardt disfigured the old myth by the introduction of modern sadistic traits. The peasant drama of Schönherr has been found wanting in the convincing vitality which characterizes the work of his unrivalled forerunner, Anzengruber.

Among the dramatists that followed in the wake of the literary revolution of the eighties, Ernst Rosmer (Frau Elsa Bernstein) has developed along technical lines and scored a success with her new play *Maria Arndt*. With amazing tenacity of purpose Frank Wedekind continues to moralize in his crude and brutal manner in his recent play of musical life, *Musik*. Max Halbe still enjoys the fruits of his early successes, but his new comedy, *Blaue Berge*, was a very weak effort at regaining the favor of the public. In a singular self-delusion, Detlev von Liliencron continues to court the dramatic muse, although his plays are but a frame for exquisite lyrical episodes. Both *Die Merowinger* and *Die Rantzau und die Pogwisch* would not have seen the footlights were not their author esteemed as the mastersinger of the younger generation. Many newcomers have been better received than members of that once so turbulent group. Ludwig Thoma, the chronicler of Bavarian life, owed the success of his *Moral* to the timely topic and obvious satire. *Der Fremdling von Murten*, by Emanuel von Bodmann, who was hitherto known only for his lyrics, augurs well for his future as a dramatist. After many years of struggle, Johann Wiegand has received the approval of serious critics by his historical drama *Thalea Bronkema*. Other dramatic novelties appealing to various interests and tastes were Stefan Zweig's tragedy of envy, *Thersites*, Albert Geiger's Biblical play *Das Weib des Urias*, *Sabbatai Zewi*, the tragedy of a Hebrew reformer by Schalom Asch, a Yiddish author, and the *Baldur* drama by Ludwig Fahrenkrog, the poet-artist whose Christ types have caused much discussion. The best comedy of the year was Emil Götts's *Mauserung*. Of the women who made their debut as dramatists, Johanne Wolf-Hamburg has been remarkably well received as the author of a serious play, *Die Meisterin*.

FICTION. In fiction the production of the year has been more satisfactory than in drama. The three deans of the German novel, Paul Heyse, Adolf Wilbrandt, and Wilhelm Jensen, have not failed to produce their annual volume. But while the recent works of the latter are decidedly inferior to their earlier works, Paul Heyse's short stories, *Menschen und Schicksale*, have all the human interest and the literary charm of the works of his prime. Sudermann has after more than ten years returned to the novel and challenges comparison with his earlier excellent stories, *Frau Sorge* and *Der Katzensteg*, in *Das hohe Lied*, in which he draws the same repellent pictures of moral depravity as in his plays. Georg von Ompteda roused himself to an effort surpassing his recent works in a strong novel of society, *Minne*. But E. von Keyserling is the greater artist and has given proof of his gift of preparing a dramatic situation by a suggestive atmosphere in *Dumala*.

The ruling tendency of modern German fiction is the evolution of a human soul from childhood to maturity. The more important recent novels are stories of a growth. Sudermann traces the development of a girl left in the world without protection. Ernst Heilborn in *Josua Kersten* tells, with sympathetic insight into his hero's soul, the story of an illegitimate child. Margarethe Böhme's *Apostel Todesscheit*, deserving a far more legitimate success than her *Tagebuch einer Verlorenen*, begins with the childhood of the hero, who is made to suffer for the sins of his forebears. Carl Hauptmann's *Einhart der Lächler* is the history of an artistic individuality doomed to spiritual solitude, yet endowed with an unlimited joy of life. Detlev von Liliencron's *Leben und Lüge*, called a biographical novel, reflects in Kai von Vorbrügge's childhood and youth the poet's own immature dreams and longings. It seems natural that these stories should be supplemented by others that treat the lives of the teachers molding the minds and souls of the young generation. Otto Ernst's *Semper der Jüngling* presents the later development of the hero of *Asmus Semper's Jugendland*. The book is his pedagogical credo, but the burden of ideas is lightened by a love element of exquisite tenderness and touches of delightful humor. Other teachers' stories are Wilhelm Arminius' *Stietz-Kandidat*, suggesting something of the spirit of Wilhelm Raabe, Walter Harlan's *Die Sünde an den Kindern*, and Heinrich Keller's *Unterlehrer Straub*.

Recent problem novels show a more artistic handling of their material than heretofore. A remarkable example is Arthur Schnitzler's admirable story treating the Jewish question, *Der Weg ins Freie*. Gabriele Reuter, in *Das Thränenhaus*, comes nearer to a story with an obvious ethical purpose than in any of her books since her classic of woman's life, *Aus guter Familie*, brought her into prominence; but she has learned the art of relieving the pathos of her argument by humor. Hermann Bahr's story of a boy's first love, *Die Rahl*, tactfully touches upon a problem seriously engaging the attention of modern parents and educators. More directly a "Tendenzroman" than any of these works is Max Burkhardt's plea for the abolition of capital punishment, *Die Insel der Seligen*. Jacob Wassermann, who always seeks unusual types, has written a story of absorbing psychological interest about Kaspar Hauser. The *Spinoza* of Otto Hauser, the critic and translator, challenges comparison with Auerbach's biographical novel, but is rather the work of a historian and philosopher than a novelist.

Time and place have lent a color to a number of stories widely different in character. The interval between the two wars for the unification of Germany and the atmosphere of a small Hessian town provide a semi-historical background for Wilhelm Holzamer's posthumous novel, *Vor Jahr und Tag*. In his sequel to *Jettchen Gebert*, Georg Herrmann effectively employs the milieu and some of the literary and artistic associations of Berlin in the first half of the century and lends to his heroine, now *Henriette Jacoby*, some traits of the famous Charlotte Stieglitz. A book impressively reflecting the religious and social aspects of life in a remote rural community is Clara Viebig's story *Das Kreuz im Venn*. It stands apart from other stories of the soil that have been published this year by touching upon the changes brought about

by industrial enterprises, while Hans von Hofensthal's *Buch vom Jäger Mart*, Jacob Schaffner's *Die Erhöferin* and the posthumous story of a Swiss writer, Maria Schlumpf, *Der Weibermann*, deal with the old problem of preserving intact the farm owned and cultivated by the forefathers. Emil Strauss so admirably relieves the pathos of the problem underlying his story, *Der Engewirt*, by a truly philosophical humor, that it not only conveys a message of supreme importance, but becomes a superb little work of art. Local color lends a charm and the antagonism between the Teutonic and the Slav elements a timely interest to Karl Hans Strabl's story of student life in Prague, *Der Shipkapass*, while the extraordinary success of Rudolf Hans Bartsch with his *Zwölf aus der Steiermark* is mainly due to its note of sincerity and its sane reading of life.

Short stories are not very numerous, but show a remarkable diversity. Some of the best have come from Austrian writers, among them Richard Schaukal and Peter Altenberg. Hermann Bahr's *Stimmen des Bluts* are of serious psychological interest, and of sombre coloring. Felix Salten, on the contrary, shows a lighter touch, although there is a deep undernote of pathos in the book which derives its title from the first story *Die Geliebte Friedrichs des Schönen*. Ludwig Thoma's *Kleinstadtgeschichten* are fair specimens of his irresistible humor and robust realism. Heinz Tovote's book, *Nicht doch*, occasionally strikes a serious theme, but is charmingly graceful in manner.

POETRY. No great striking figure has appeared in the poetical production of the year. In quantity, too, it has fallen behind that of previous years. Owing to his prominent position in the modern school, Otto Julius Bierbaum's *Maultrommel und Flöte* challenged attention, but it lacks the spontaneity and sincerity of genuine inspiration and seems more a product of habit than of inner impulse. Wilhelm Schulz, who has a fine ear for the simple rhymes of the folk song and a remarkable gift of imagery, subordinates the latter in his new book, *Der bunte Kranz*, to the pictures by which he illustrates his verse. Hugo Salus is even more disappointing in *Die Blumenschale*, because he once bade fair to develop into an individuality of rare distinction. Max Dauthendey is still pre-eminently a great colorist, but he has attained a higher sense of poetical values; only the name of his new book suggests his old mannerisms, *In sich versunkene Lieder im Laub*. The ambitious title of Gustav Schüller's book of verse does not fulfill the promise of its programme, *Auf den Strömen der Welt zu den Meeren Gottes*, yet is full of a spiritual earnestness which commands respect. Some of the new poetry shows a critical attitude towards the conventions of the modern world. Fritz Adler's *Vom goldenen Kragen* is mainly directed against bureaucracy and militarism, while Hans W. Fischer's *Buch des Widerspruchs* fairly bristles with satire all around. A posthumous volume by Wilhelm Busch, *Herrnack*, had a pathetic interest, since the great humorist is not likely soon to find a worthy successor. Some valuable anthologies have appeared: *Deutsche Lyrik der Neuzeit*, a catholic collection comprising specimens of verse by Ferdinand von Saar, Felix Dahn, Johannes Trojan, Martin Greif, Ernst von Wildenbruch, Gustav Falke, Detlev von Liliencron, Arno Holz, Richard Dehmel, and Otto

Julius Bierbaum. Hanz Benzmann's *Moderne deutsche Lyrik* has been reissued in a revised and enlarged edition.

MISCELLANEOUS. There have been many prose volumes on a great variety of subjects, but none more delightful as a work of art than Gerhart Hauptmann's book of travel, *Griechischer Frühling*, the record of a journey in Greece by a poet for whom every foot of the classic soil bore a mine of associations and suggestions. The fascinating personality of Ernst von Wolzogen is admirably reflected in his essays, *Augurenbriefe* und *Ansichten und Aussichten*, which cover philosophy, letters, music and art. Criticism has lost its strongest representative in Leo Berg, whose *Heine, Nietzsche, Ibsen* was the most recent of his valuable contributions to the history of modern literature. Hans von Wolzogen's book *Aus Richard Wagner's Geisteswelt* is of literary interest, containing minor writings of the poet-composer, among them a study of Faust. Of philosophical works appealing to the general reader by their literary quality the first rank must be accorded to Nietzsche's *Ecce Homo*. His rival as a spiritual force in modern Germany, Gustav Theodor Fechner, has been brought forward in a selection from his writings. Alexander von Gleichen-Russwurm has written a suggestive book *Siegder ruende Aesthetik des praktischen Lebens*, and the latest work by Dr. Rudolf Fucken, the winner of the Nobel prize, *Sinn und Wert des Lebens*, is of absorbing interest.

HISTORIES OF LITERATURE have been scarce. A second revised edition of Carl Weitbrecht's *Deutsche Literaturgeschichte des 19. Jahrhunderts*, a separate edition of that part of Eduard Engel's *Geschichte der deutschen Literatur* which covers the present time, and the second volume of Alfred Biese's *Deutsche Literaturgeschichte*, covering the period from Goethe to Möricke, are among the important publications. Robert F. Arnold, Julius Bab, and Joeza Savits have contributed to the history and criticism of the drama. A valuable work of reference bears the title *Deutsche Literaturdenkmale des 17 und 18. Jahrhunderts*. The volume, edited by Paul Legband, contains specimens of lyric poetry.

BIOGRAPHY. In biography Goethe and Schiller head the list. Bielschowsky's *Goethe* has reached the 56,000 mark. Karl Berger's *Schiller* 14,000, and Eugen Kùhuemann's *Schiller* 9,000. The most important additions to Goethe literature are Ludwig Geiger's intimate study of Goethe's family, *Goethe und die Seinen*, and a book about his ancestors, *Goethe's Ahnen*, by Dr. Carl Knetach. The conversations with Eckermann have been reprinted from the original edition and his diaries have been re-edited by Hans Gerhard Gräff. His correspondence with Marianne von Willemer is another interesting volume. The letters of Schiller and his wife have been edited by Alexander von Gleichen-Russwurm. Other biographical works are Adolf Bartels' life of Jeremias Gotthelf, the Swiss writer, Rudolf Kraus, life of Eduard Möricke, the Suabian poet. Anton Schlosser's life of Anastasius Grün, Count Auersperg, and Ludwig Schroeder's *Freiligrath*, all originally introductions to the author's complete works. Albrecht Keller has edited Franz Grillparzer's autobiography, and a curious undertaking is the autobiography of Friedrich Hebbel, compiled from his diaries, letters, and poems by Hans Brandenburg, and entitled with

reference to Hebbel's struggles, *Der heilige Krieg*.

MEMOIRS. There have been many books of memoirs, foremost among them Henrik Steffens' *Lebenserinnerungen*, essential for the understanding of the romantic school, Richard von Hornstein's *Memoiren*, full of interesting recollections of Schopenhauer and the great writers and musicians of his time and the memoirs of the Baroness Suttner, the champion of the peace movement. But the work which has caused the widest discussion has been Carl Albrecht Bernoulli's *Franz Overbeck und Friedrich Nietzsche*, for its indiscretions called forth a legal injunction and necessitated the publication of Nietzsche's letters to his mother and sister, which otherwise would have been withheld from the public.

NEW EDITIONS have been numerous. Foremost among them is the complete Goethe, edited by Dr. Karl Heinemann with the coöperation of Harnack, Maync, and other scholars. Valuable selections are *Goethe's Sprüche in Reimen* edited by Max Hecker and a truly monumental work is Hans Gerhard Gräff's *Goethe über seine Dichtungen*, of which the sixth volume, covering his opinion of his dramas, has been published. *Unser Nibelungenlied* is the title of a new translation of the epic by Dr. H. Kamp. Authors presented either in new selections or editions of their complete works are Jeremias Gotthelf, Otto Ludwig, Ernst Moritz Arndt, Heinrich Laube, and Christian Friedrich Grabbe. Of historical value is the reprint of Johannes Scherr's *Blücher und seine Zeit*. Among the foreign authors presented in translations are Dante, Cervantes, LeSage, Balzac, Flaubert, Stendhal, Baudelaire, Rambaud, Richardson, Thackeray, Shaw, Wilde, Robert Hunter, Helen Keller, and others.

GERMAN METHODIST CHURCH. See EVANGELICAL ASSOCIATION.

GERMAN NEW GUINEA, OR KAISER WILHELM LAND. A protectorate in the northeast of the island of New Guinea. Area, 70,100 square miles; population, 110,000. In 1907 there were 207 foreign colored, mostly Chinese, and 182 whites (162 Germans). Gold has been found in the Bismarck Mountains. The forests contain areca and sago palms, bamboos, ebony, and other woods. There are cocoa-palms and rubber plantations. Copra is the principal export. In 1906 the imports amounted to 917,000 marks, and the exports to 49,000 marks. The seat of government is Herbertshöhe, in New Pomeranian, Bismarck Archipelago. The budget for 1908-9 balanced at 1,523,469 marks, of which 1,141,569 marks was an Imperial subvention. Attached to German New Guinea are the Bismarck Archipelago (q. v.), the German Solomon Islands (q. v.), the Caroline Islands (q. v.), the Ladrone Islands (q. v.), and the Marshall Islands (q. v.).

GERMAN REFORMED CHURCH. See REFORMED CHURCH IN THE UNITED STATES (GERMAN).

GERMAN SAMOA. This includes the islands of Savaii, 660 square miles and 12,816 inhabitants in 1906; Upolu, 340 square miles and about 18,000 inhabitants; and adjacent smaller islands. Total area, 999 square miles; total population (1906), 34,062. Chinese numbered 1,104, and foreign colored, 855. The whites in

1907 numbered 455 (248 Germans). There are about 8000 pupils in the mission schools. In the past seven years 1,000,000 cocoanut trees have been planted by the Germans, and it is estimated that by 1915 there will be produced 30,000,000 pounds of copra annually. Cacao and rubber are also established industries. The imports are chiefly from Australia. In 1906 the imports amounted to 2,889,000 marks (750,000 from Germany), and the exports, 3,026,000 marks (1,505,000 to Germany). The white planters were formerly dependent upon native labor, but now imported Chinese do the major part of the work. A Chinese laborer receives \$2.86 a month. The total cost to the employer, including passage money, wages, maintenance, and medical treatment, is from \$8.93 to \$11.90 a month. The administration is by a Governor, under whom there are a native High Chief with a native council for the administration of native affairs, and minor chiefs for the administration of districts. The budget for 1908-9 balanced at 704,582 marks, of which 144,482 marks was an Imperial subvention.

GERMAN SOLOMON ISLANDS. This group includes the islands of Bougainville and Buka, to the east of the Bismarck Archipelago. Area, 4200 square miles; population, 45,000. Sandalwood and tortoise shells are the principal exports. For administrative purposes the islands are attached to German New Guinea (q. v.).

GERMAN SOUTHWEST AFRICA. A German colony, between Portuguese West Africa and British South Africa. Area, 317,950 square miles; population, about 200,000. The number of whites in 1907 was 7,110. At Windhoek, the capital, a natural history museum has been started. Settlers receive tracts of land from 2,500 to 10,000 hectares. The chief industry is pastoral. In 1907 there were 101,595 sheep, 3,690 angora goats, 99,663 other goats, 3,119 horses, 5,450 mules, 2,155 asses, 1,202 pigs, and 487 camels. Vegetables and fruits are cultivated. There are Government experimental stations for agriculture, gardening and forestry. The culture of cotton, silk, tobacco, and wine is being introduced. In June, 1908, a diamond field was discovered in the neighborhood of Lüderitz Bay. By the end of August, 1908, 2,000 stones had been collected, mostly weighing two-thirds of a carat. A company has been formed for working it. By a decree of October 1, 1908, this company was granted complete control over the prospecting and working of minerals, except as against the established rights of third parties, in the district bounded on the north by 28° S. lat., on the south by the north bank of the Orange River, on the west by the Atlantic, and on the east by a line running parallel to the sea coast at a distance of 100 kilometres (62 miles) from it. Copper mining is carried on at Tsumeb. In 1907 tin was reported to have been discovered near Lüderitz Bay. The imports in 1906 amounted to 68,626,000 marks (51,837,000 from Germany), and the exports, 383,000 marks (266,000 to Germany). Imports on private account amounted to 36,949,000 marks, the rest being government stores. In 1907 the imports and exports amounted to 32,696,000 and 1,616,000 marks, respectively. The sale of methylated spirits to natives was prohibited in 1908. At the end of 1907 there were 777 miles of railway, and about 1,250 miles of telegraph line. In 1908 the line

from Lüderitz Bay to Ketmanshoop was opened. In 1908 the military force numbered 4,016 (1,020 natives). The budget for 1908-9 balanced at 51,354,558 marks, of which 38,066,472 was an Imperial subvention. The Hottentots renewed hostilities at the end of the year.

GERMANY. An empire of western Europe. Area, 208,830 square miles; population (Dec. 1, 1905), 60,641,278. At the middle of 1908 the population was estimated at 63,017,000. In 1906 there were 498,990 marriages, 2,022,477 births (exclusive of 62,202 still births) and 1,112,202 deaths. The rate per 1,000 of population was: Marriages, 8.16; births (including still births), 34.08; deaths (including still births), 19.20; excess of births over deaths, 14.88. For the quinquennium 1902-1906 the average birth-rate was 34.83; death rate, 20.44: rate of excess of births over deaths, 14.39. The number of illegitimate births in 1906 was 177,060—8.49 per cent. of all births. The number of suicides in 1906 was 9,573 (2,922 females)—20.4 per 100,000 of population. The number of emigrants in 1907 was 31,696 (30,431 to the United States). The principal cities with their populations in 1905 were: Berlin, the capital of the empire, 2,040,148; Hamburg, 802,793; Munich, 538,983; Dresden, 516,996; Leipzig, 503,672; Breslau, 470,904.

EDUCATION. Of 264,321 army and navy recruits in 1907, only 58 were without school education. The number of public schools in 1906 was 60,584, with 166,597 teachers (29,384 female), and 9,737,262 pupils. The total expenditure on public schools was 523,940,000 marks (1 mark=23.8 cents), to which the various States contributed 151,213,000 marks. In addition there were 614 private schools following the same curriculum as the public schools, with 42,094 pupils. Thus the total number of schools was 61,198; of pupils, 9,779,356. The total number of children of school age (6-14 years) on Dec. 1, 1905, was 10,500,000; thus 94 per cent. of all children of school age were in public schools and their equivalents. Of the 6,164,398 school children of Prussia in 1906, 671,845 were Polish-speaking, and 142,769 spoke Polish and German. There are 9 technical schools ranking with the universities. Of the latter there are 21, with 46,741 students in the winter of 1907-8.

AGRICULTURE, FORESTS, AND FISHERIES. The harvested areas and production of the principal crops in 1907 were as follows:

	Hectares.	Metric tons.
Wheat	1,746,787	3,479,324
Winter spelt	305,841	438,000
Rye	6,042,580	9,757,859
Summer barley	1,701,707	3,497,745
Oats	4,377,115	9,149,123
Potatoes	3,297,483	45,538,299
Clover, etc.	1,970,377	9,098,368
Lucerne	234,465	1,401,368
Meadows	5,902,999	*24,911,988

* Of hay.

Vineyards covered in 1907 118,581 hectares, yielding 2,491,894 hectolitres (1 hectolitre =26.4 U. S. gallons) of wine, valued at 114,600,000 marks. Tobacco covered 15,405 hectares, yielding 28,839,814 kilograms of tobacco, valued at 27,012,977 marks. Hops covered 35,856 hectares, yielding 26,340 metric tons. The area under sugar-beet in 1907-8 was 1,112,043

acres; in 1908-9, 1,074,622 acres. The production of sugar-beet in 1907-8 was 13,482,750 tons; in 1908-9, 11,719,931 tons. The forest area of the empire is 13,995,869 hectares. The Prussian State forests covered in 1907 2,639,267 hectares; the average annual net income from them is 92,000,000 marks. The product of the fisheries in the North and Baltic seas in 1907 was valued at 34,233,749 marks. In December, 1907, there were in Prussia 3,041,805 horses, 11,996,804 cattle, 5,398,460 sheep, 15,070,311 pigs, 2,215,558 goats, 46,685,572 head of poultry, 1,528,103 beehives, 6,385 asses, and 395 mules.

MINING AND METALS. In 1907 there were 313 coal mines in operation, employing on an average 545,330 laborers, and turning out 143,185,700 metric tons of coal, valued at 1,394,271,000 marks. The average product per laborer was 263 tons, and the average price per ton was 9.74 marks. Included in the total were 25 State mines, employing 83,307 laborers, and turning out 19,259,000 tons, valued at 218,114,000 marks; giving an average product of 231 tons per laborer, and an average price of 11.33 marks. Notwithstanding the increased production over 1906, when 137,117,900 tons of coal were produced, the demand was so great that 13,721,549 tons of coal were imported, against 9,253,711 tons in 1906—an increase of 48.3 per cent. The export of coal also increased, but to a much smaller extent. In 1907 there were exported 20,056,503 tons, against 19,550,964 tons—an increase of 2.6 per cent. The number of brown coal mines in 1907 was 536; average number of laborers, 66,462; total output, 62,546,700 tons; total value, 156,347,000 marks; average production per laborer, 941 tons; average price per ton, 2.50 marks.

The production of iron ore in 1907 was 27,697,128 tons, valued at 119,186,000 marks, against 26,734,570 tons, valued at 102,578,000 marks, in 1906. The iron market showed no indications of decline until the last three months of the year. The imports of iron ore increased from 7,629,730 tons in 1906 to 8,476,076 tons in 1907 (3,603,500 tons from Sweden, 2,149,299 tons from Spain). Since 1903 Germany has been the second pig iron producer in the world. The pig iron production of 1907 was 12,875,150 tons, valued at 824,077,000 marks, against 12,292,819 tons, valued at 715,188,000 marks, in 1906. The German Iron and Steel Union gave the 1908 iron production as 11,813,511 metric tons, as compared with 13,045,760 in 1907, a decrease of 9.4 per cent. The number of furnaces was 303 in 1907, against 288 in 1906. The imports of pig iron in 1907 were 607,729 tons; exports, 395,376 tons. The total production of cast iron, wrought iron, and steel in 1907 was 14,686,282 tons, valued at 2,183,051,000 marks, against 12,682,929 tons, and 1,948,576 marks in 1906. Included in the production of 1907 were 9,394,100 tons of finished products, valued at 1,952,000,000 marks, against 8,916,859 tons and 1,754,000,000 marks in 1906. The imports of iron and steel and their manufactures in 1907 were 813,345 tons, valued at 120,052,000 marks, against 690,815 tons and 100,169,000 marks in 1906. The exports of these in 1907 were 3,455,889 tons, valued at 791,172,000 marks, against 3,674,634 tons, and 719,745,000 marks in 1906. During the first nine months of 1908 German exports of iron and its manufactures were reported to be 2,804,679

tons, exceeding those for the same period of 1907 by 9 per cent. Of the total, 307,523 tons were pig iron, 323,721 tons partly finished iron and steel, and the remainder wholly finished iron or steel wares. In the same nine months Germany imported 429,905 tons of iron and iron products, a reduction of 28 per cent. compared with the imports for the same period of 1907.

The output and value of other leading minerals in 1907 were as follows: Asphalt, 126,649 metric tons and 1,087,000 marks; petroleum, 106,379 tons, 7,056,000 marks; rock salt, 1,285,138 tons, 5,989 marks; cainite, 2,624,412 tons, 36,117,000 marks; other potassium salts, 3,124,956 tons, 30,527,000 marks; zinc ore, 698,425 tons, 42,293,000 marks; lead ore, 147,272 tons, 20,132,000 marks; copper ore, 771,227 tons, 26,702,000 marks; common salt, 665,547 tons, 16,481,000 marks; chloride of potassium, 473,138 tons, 53,108,000 marks; sulphur ore, 196,320 tons, 1,722,000 marks.

The production and value of the other leading metals and other smelting products in 1907 were as follows: Zinc, 208,195 tons, 96,573,000 marks; lead, 142,271 tons, 54,479,000 marks; copper, 31,946 tons, 61,497,000 marks; silver, 386,933 kilograms, 34,655,000 marks; gold, 4,682 kilograms, 13,071,000 marks; sulphuric acid and of vitriol, exclusive of copper vitriol, 1,402,398 tons, 40,207,000 marks. The lead production declined from 150,741 tons in 1906, but the average price per ton rose from 338.30 marks in 1906 to 382.92 marks in 1907. The copper production declined 329 tons; the imports of raw copper declined from 126,071 tons to 124,117 tons; the export of copper was 6,113 tons, a decline of 1,128 tons from 1906. There are no gold ores in Germany, the gold produced being obtained as a by-product, chiefly from imported ores. Silver is produced chiefly in Prussia and Saxony from State-owned mines. Owing to the depreciation in the value of silver, the Saxon silver mines are being worked at a loss, but the government has shrunk from closing them and exposing the mining population of Freiberg to general misery. But operations are being gradually restricted, and on April 28, 1908, the Saxon minister of finance announced that the mines would be completely closed in 1913. Many of the older miners will be pensioned, and efforts will be made to lessen the evil effects. The famous mining academy at Freiberg will be continued. Reports for 1908 give the coal production at 148,621,201 metric tons; lignite, 66,450,144; coke, 21,174,956 (1907, 21,938,038); coal briquettes, 3,995,449; lignite briquettes, 14,227,218 tons.

MANUFACTURES. During the year ending Aug. 31, 1908, there were in operation 9,882,505 spinning spindles, of which 9,191,900 were running short time. The mill consumption of cotton during the year was 1,793,180 bales (1,247,468 American, 407,950 East Indian, 100,703 Egyptian). The imports of cotton in 1907 were 536,823 metric tons, of which 79,678 were re-exported. This exceeded the imports in 1906 by 89,378 tons. The imports of cotton yarn also increased from 22,284 tons in 1906 to 40,100 tons in 1907. In the latter year the cotton spinners were short of operatives and could not supply the increased demand. The cotton-weaving factories did not work as profitably as the spinners, particularly in the second half-year. Nevertheless, the export of German woven

cotton goods in 1907 was 56,618 tons, an increase of 763 tons over 1906. In 1908 the conditions became more unfavorable, and the import of textile raw materials during the first seven months of 1908 fell to 533,972 tons, against 610,506 tons during the same period in 1907. Cotton fell from 305,977 to 256,675 tons; wool, from 135,017 to 114,651 tons; silk, from 3,422 to 3,017; jute, from 94,628 to 91,055; flax, from 29,451 to 21,037; hemp, tow, ramie, etc., from 42,011 to 47,538 tons. The importation of cotton yarn during the same period likewise fell from 20,268 tons in 1907 to 17,682 in 1908, and woolen yarn, from 15,076 to 11,984 tons. The ratio of operatives seeking employment to 100 vacant places in textile mills was 156 in July, 1908; 121.1 in January, 1908; 92.4 in July, 1907; and 90.6 in 1906.

In 1907 the manufacture of silk and plush goods was carried on in 3,564 establishments, of which 1,313 were cottage or domestic industries not employing any hired labor. The total number of operatives was 71,986, and the average earnings for the year were 901 marks. Crefeld is the centre of this industry, the value of its output in 1907 being \$21,500,000.

At the end of 1907 there were 8,618 chemical factories, with 207,000 operatives, whose wages amounted to \$54,740,000 during the year; the corresponding figures for the preceding year were 8,505; 195,000; and \$49,266,000. The joint-stock undertakings in 1907 numbered 166, with a total share capital of \$125,806,800, reserves \$41,316,800, and outstanding debts \$22,514,800. The dividends paid during the year amounted to \$19,444,600. The average rate of profit in 1907 for the entire industry was 10.73 per cent., an increase of 0.7 per cent. over the rate for 1906. In 1908 the chemical industry, with the exception of the manufacture of white lead and other lead pigments, did not suffer seriously from the general business depression. During the first six months of 1908 the imports of chemical products, colors, and pharmaceutical preparations amounted to 792,776 tons, against 800,423 in the same period in 1907; the exports were 1,170,714 tons, against 1,143,376 tons in the same period in 1907.

The same phenomenon of a decrease in imports and an increase in exports in 1908 was reported from the machine industry. During the first seven months of 1908 the export of locomotives was 27,160 tons, against 16,992 tons for the same period in 1907; steam engines, 28,851 tons, against 20,832 in 1907; agricultural machines, 11,915 tons, against 10,642 tons in 1907; and so on in mining, industrial and other machinery. Prices were reduced in order to meet British and American competition. As to employment, there were 307 applications to every 100 vacancies.

The number of automobile factories in 1906 was 34, with 10,347 employees, and an output valued at \$12,200,000. In 1901 the corresponding figures were 12; 1,589; and \$1,340,000. The average wages increased from \$272 in 1901 to \$307 in 1906.

Including war and trading, ocean and river, steam and sailing vessels, there were being built on private shipyards in Germany during 1907, 1,424 ships of 784,627 gross registered tons, against 1,182 ships of 786,679 tons in 1906. The number of vessels completed in 1907 was 951, of 368,440 gross registered tons, against 757, of 390,991 tons, in 1906. Under

construction in 1907 for foreign account were 141 vessels of 32,702 tons, of which 112 vessels, of 20,102 tons, were completed. At the same time there were under construction on foreign shipyards for German account, 212 vessels of 200,928 tons, of which were completed 145 vessels, of 119,518 tons. The shipbuilding on hand on Sept. 30, 1908, exclusive of war vessels, was 160,804 gross tons, against 236,348 on the same date in 1907. The tonnage of vessels launched in 1908 of 100 tons gross and upwards was reported as 207,777, exclusive of warships, and about 18,000 tons built in the upper rivers.

The product of the porcelain factories in 1907 was estimated at nearly 200,000 metric tons, against 80,000 tons in 1897. The export in 1907 was valued at 71,200,000 marks, against 32,100,000 marks in 1897. During the first six months of 1908 the porcelain exports were valued at 31,790,000 marks, against 34,110,000 marks during the same period in 1907. Prices remained relatively stable.

In 1908 there were 374 glass works with 62,159 employees (7,577 minors and 5,267 women). Prussia alone had 220 glass works with 38,479 employees.

The production of sugar in 1907-8 (Sept. 1, 1907-Aug. 31, 1908) was as follows: Raw sugar, 1,842,092 metric tons; refined, 1,566,895 tons; total output in terms of raw sugar, 2,135,979 tons. The quantity of raw beet used was 13,491,424 tons. The estimate for 1908-9 was 2,050,000 tons. The manufacture of chocolate employs 22,000 skilled workers. In 1907 there was reported to be a shrinkage of over 15,000,000 marks in the value of the output.

The number of breweries in operation in the Beer Excise Territory in 1907 was 5,528, against 5,785 in 1906. The output in 1907 was 46,094,677 hectolitres (1 hectolitre = 26.4 gallons), against 45,866,798 in 1906. The beer excise revenue in 1907 was 66,008,563 marks.

The production of alcohol in 1906-7 (Oct. 1, 1906-Sept. 30, 1907) was 3,841,207 hectolitres in 65,405 distilleries, against 4,376,695 hectolitres in 1905-6. The reduction in production is ascribed partly to the poor potato crop of 1906, but chiefly to the action of the "Centrale," or Spirits Trust, in proposing to its distilleries a reduced production in order to prevent a fall in prices, when it found that on Sept. 30, 1906, there were 772,549 hectolitres of alcohol on hand. The alcohol excise revenue in 1906-7 was 140,917,766 marks. The imports of alcohol in 1906-7 were 29,478 hectolitres; the exports, 231,396; and the consumption, 2,457,405, or 4 hectolitres per capita. The materials used in the manufacture of alcohol in 1906-7 were potatoes, 2,727,493 tons; grains, 403,673 tons; besides molasses, beets, fruit, etc.

The number of juvenile laborers (under 16 years) in Germany in 1907 was 449,236; of female laborers, 1,145,535, of whom 449,436 were between 16 and 21 years of age.

JOINT-STOCK COMPANIES AND TRUSTS. On Dec. 31, 1907, there were 5,147 joint-stock companies, with a nominal capital of 14,218,329,000 marks, against 5,060 companies, with 13,848,610,000 marks of capital, at the end of 1906. The number of cartels, or trusts, was reported to have largely increased during 1907. The chief purpose of these associations of producers is to regulate prices, and hence production.

FOREIGN COMMERCE. The imports for consumption and exports of domestic produce of

the German Customs Union in 1907 amounted to 9,003,323,000 and 7,100,583,000 marks, respectively, against 8,438,554,000 and 6,478,608,000 in 1906. The imports and exports of precious metals in 1907 (included in the above totals) were 256,645,000 and 249,693,000 marks, respectively. The general classification of the imports and exports of merchandise in 1907 was as follows, in millions of marks:

	Imports	Exports
Articles of food.....	2,202.7	530.5
Living animals.....	226.8	11.6
Raw materials.....	4,434.9	1,499.7
Manufactures.....	1,882.3	4,808.9
Total merchandise.....	8,746.7	6,850.9

The principal imports in 1907 were, in millions of marks: Cereals, 945.6; cotton, 571.4; wool, 487.2; hides and skins, 368.6; coal, 343.3; wood and timber, 286.8; chemicals and drugs, 281.4; copper, 245.0; iron, 194.6; silk, 194.1; coffee, 162.4; eggs, 149.7; bran, 148.9; cotton yarn, 140.1; woolen yarn, 139.0; leaf tobacco, 132.0; rubber and gutta-percha, 114.3; linseed, 97.9; fats, 94.3; oil-cake, 94.3; iron manufactures, 87.5; fish, 86.9; machinery, 83.2; hemp and flax, 82.7; butter, 80.6; petroleum, 80.4; coconuts and copra, 78.8; silk goods, 78.8; fruits, 72.2; jute, 66.4. The leading exports in 1907 were: Iron manufactures, 771.5; cotton goods, 432.0; coal, 395.2; machinery, 387.3; chemicals and drugs, 335.3; woolen goods, 285.5; dyes and colors, 236.5; silk goods, 202.5; sugar, 194.9; paper, 190.0; electrotechnical products, 167.3; leather, 152.0; gold and silver articles, 129.2; cereals, 126.6; apparel, 122.7; wool, 122.1; ships, 119.0; copper manufactures, 117.9; glass ware, 115.3; hides and skins, 110.1; peltries, 106.5; pottery, 106.3; cotton, 83.6; leather manufactures, 81.7; jewelry, 80.3; wool yarn, 75.3; musical instruments, 64.6; books and maps, 58.9. The distribution of the commerce in 1907 among the principal countries of origin and destination was as follows, in millions of marks:

From and to	Imports	Exports
Great Britain.....	976.6	1,060.4
Netherlands.....	227.5	452.1
Belgium.....	296.7	342.9
France.....	453.6	449.1
Switzerland.....	210.8	446.4
Austria-Hungary.....	812.3	716.6
Denmark.....	123.0	207.1
Sweden.....	172.0	186.6
Russia.....	1,069.9	483.3
Rumania.....	149.8	68.6
Italy.....	285.4	302.9
Spain.....	139.9	65.6
Turkey.....	55.1	81.5
British India.....	407.1	104.7
Dutch India.....	187.1	42.6
China.....	56.7	63.2
Japan.....	29.4	102.4
Egypt.....	80.4	39.5
United States.....	1,319.3	652.3
Mexico.....	21.6	58.7
Brazil.....	196.0	104.1
Argentina.....	442.5	179.2
Chile.....	143.9	84.7
British Australasia.....	228.0	61.1
German Colonies.....	22.2	36.8

NAVIGATION AND SHIPPING. The total net tonnage entered at German ports in 1908 was

25,602,488, and cleared, 25,619,159. The Baltic ports were entered and cleared by 15,706,736 tons; the North Sea ports, by 35,595,433 tons. German shipping constituted 49.64 per cent. of the tonnage entered and cleared; British, 26.70; Danish, 8.23; Swedish, 5.87; Norwegian, 4.08; Dutch, 1.99; Russian, 1.28. The merchant marine on Jan. 1, 1908, consisted of 4,571 vessels, of 4,282,720 gross tons and 2,790,435 net tons (including 625 fishing vessels, of 71,492 gross and 31,989 net tons). Sailing vessels numbered 2,649, of 533,652 net registered tons, and steamers 1,922, of 2,256,783 net tons. The crews numbered 71,853. Hamburg, the foremost maritime State, had 1,291 vessels, of 1,531,443 tons, including 697 steamers, of 1,255,463 tons.

INTERNAL COMMUNICATIONS. The length of railways in the empire on Aug. 1, 1908, was 36,286 miles, of which 3,209 miles were owned by companies, and the rest by the States. The ownership by States was as follows: Prussia and Hesse, 24,175; Bavaria, 4,084; Saxony, 2,027; Württemberg, 1,217; Baden, 1,078; Mecklenburg, 679; Oldenburg, 398; Alsace-Lorraine, 1,223. The total length of telegraph line in 1907 was 93,963 miles, of which 12,228 miles were owned by Bavaria, 4,673 miles by Württemberg, and the rest by the Empire. A two-cent letter postage was arranged between Germany and the United States, to come into effect on Jan. 1, 1909, and to apply only to letters carried by direct mail steamships between the two countries. The number of automobiles in the empire on Jan. 1, 1908, was 36,022, against 26,026 the previous year.

The Government railways of Westphalia and the Rhine Province were no longer able to cope with the ever-increasing traffic of the industrial and mining centres of the region. The government therefore began in the spring of 1908 the construction of the Rhine-Herne Canal, which is to join the Rhine with the Dortmund-Ems Canal and traverse the entire coal-field and industrial region of Westphalia. The bed of the river Emscher will be utilized to a great extent. The canal will join the Rhine at Ruhrort, and will have branch canals to Essen, Bochum, and Gelsenkirchen. It is to be finished by 1915 at the latest. The navigation on the Kaiser Wilhelm Canal in 1907-8 was 34,998 ships, of 6,423,441 net tons.

ECONOMIC CRISIS. The recent commercial boom came to a definite end towards the latter part of 1907. The finishing industries were the first to suffer, for the reason that higher wages and higher cost of raw materials bear more directly on them, and also because they are rarely able to combine to prevent underbidding or command terms to the syndicated industries on which they depend for the supply of raw materials. But with the progress of the crisis, the building trades, the iron and steel industry, shipbuilding, the textile industry, etc., also succumbed. At the beginning of the depression there was a general tendency to ascribe the slackening of trade to the high rate of interest. The latter was accounted for partly by special occurrences, such as the destruction of capital in the Russo-Japanese War and the San Francisco and Valparaiso earthquakes; partly by the withdrawal of foreign capital from German enterprises, the sudden calling by the United States for the settlement of German accounts, the absorption of German capital in foreign enterprises, such as colonial banks, electrical in-

stallations, the Rumanian petroleum industry, etc.; and partly by the increased expenditure of State and cities for social betterment purposes, the "increasing luxury of the working classes," etc. But towards the end of 1908 the rate of interest fell lower than it had been in many years, less than half of what it had been a year before, and still there was no sign and no expectation of immediate improvement. It was stated that the firm grip of the syndicates on most of the great branches of industry had prevented the depression from issuing in a panic; but it was admitted that this very fact may have resulted in the spreading of the depressed condition over a longer period.

FINANCE. The budget estimates of revenue and expenditure for the fiscal year 1908-9 balanced at 2,784,852,293 marks. The principal estimates of revenue, in marks, were: Customs, 666,974,000; excise taxes common to the whole empire, 401,889,910; various taxes, 189,168,770; posts and telegraphs, 644,147,000; railways, 125,532,000; receipts from the Reichsbank and other banks, 34,669,000; interest on Invalid Fund, 36,852,642; compensatory quotas from the states outside of the Beer Excise Territory (Bavaria, Württemberg, Baden, and Alsace-Lorraine), 19,914,748; contributions from the various States apportioned according to population, 346,028,072 (Prussia, 198,893,383; Bavaria, 32,776,404; Saxony, 23,797,012; Württemberg, 11,807,076; Baden, 10,615,752; Alsace-Lorraine, 9,578,895, etc.); extraordinary revenue, 265,551,252 (including loans of 260,954,112). The principal estimates of expenditure were: Colonies, 57,804,619; posts and telegraphs, 621,749,783; railway administration, 1,215,167,000; army, 854,392,244; navy, 348,973,677; pensions, 110,382,550; Invalid Fund, 36,039,449; debt of empire, 155,972,024. At the end of 1906 the interest bearing debt of the empire stood at 3,803,500,000 marks, having increased by 260,000,000 in course of the year. The non-interest bearing debt, consisting of treasury bills and paper money, amounted to 510,000,000 marks. The Invalid Fund stood on March 31, 1908, at 178,359,400 marks. The War Fund of 120,000,000 marks is preserved in gold.

For several years past the contracting of new loans had been a regular feature of the German budget, occasioned mainly by the ever-increasing expenditure on army and navy. This, together with the unfavorable international relations of the empire, resulted in lower quotations for German bonds than for French, or even Italian and Spanish bonds bearing the same rate of interest. To do away with the continually recurring necessity for borrowing, Herr Sydow, the finance minister of the empire, laid on Nov. 4, 1908, before the Reichstag a bill authorizing additional taxation, estimated to yield at least 500,000,000 marks annually. A partial monopoly of the manufacture and sale of spirits to be given to the Imperial government was estimated to yield 100,000,000 annually; an additional excise duty on tobacco, 77,000,000; an additional excise duty on beer, 100,000,000; a tax on bottled still wine, 20,000,000; a new inheritance tax, 92,000,000; a tax on electricity, 50,000,000; a tax on advertisements, 33,000,000; and an increase in the matricular contributions of the States, 28,000,000. At the end of 1908 the proposals were in the hands of the Finance Committee of the Reichstag.

ARMY. Military service is compulsory and universal, liability commencing at the age of 17, but actual service usually at the age of 20, and ending at the age of 45 years. The term of service in the First Line, or active Army, is 7 years, of which 2 years is in the ranks and 5 years in the reserve, except for Cavalry and Horse Artillery, which serve 3 years in the ranks and 4 years in the reserve. After service in the First Line, there is 5 years (3 years for Cavalry and Horse Artillery) in the first ban of the Landwehr or the Second Line Army, with two periods of training of 8 to 14 days each. The soldier then passes to the second ban of the Landwehr or reserve of the Second Line Army, with no training until he completes his 39th year. Finally, all soldiers pass to the Landsturm, or Home Defence Army, second ban, until the completion of the 45th year. The first ban of the Landsturm consists of all those between the ages of 17 and 39 years, who have received no military training. The one-year volunteers consists of educated young men who pay all their own expenses, and this class is a very useful one, furnishing all the Reserve and Landwehr officers. The Ersatz Reserve consists of all young men of 20, fit for service, who are not required for the annual contingent of recruits, and this class is held as its name indicates to "compensate" the losses in war. Of the more than 1,000,000 young men examined annually less than one-half are passed as fit for land or sea service; of this number more than one-fourth are sent at once to the Landsturm, that is, are exempted from actual service; and about 80,000 go to the Ersatz Reserve, the annual contingent for the Army being about 210,000 to 220,000 men. There are 216 regiments of Infantry and 18 rifle battalions, 99 regiments of Cavalry, 92 regiments of Field Artillery, 18 regiments of Garrison Artillery, 26 battalions of Field Engineers, 7 battalions (3 1-2 regiments) railway troops, 4 battalions telegraph troops, 1 battalion balloon troops, and other auxiliary organizations, all belonging to the First Line. The peace strength of the active Army was about 619,000 combatants of all ranks; that of the Field Army (23 corps and independent Cavalry) about 1,160,000, including the reserve. To this number must be added the mobile Landwehr of 600,000, which gives an aggregate for the trained Field Army of 1,760,000 men, not including garrison troops or Landsturm. Besides this there is the Ersatz Reserve of about 1,500,000 to supply the losses of war.

The Infantry is armed with the Mauser magazine rifle; the Cavalry with the Mauser Carbine; the Field Artillery is being re-armed with a modern quick-firing shielded gun. The military budget in 1908 carried about \$192,500,000, which is about \$6,000,000 more than for the preceding year.

The principal activities in the German Army in 1908 were the following: Maneuvers in mine laying; experiments with airships and means of attacking them by means of armored automobiles, possessing high speed and carrying rapid-fire guns; development of automobile trains by competition and subsidies to manufacturers of automobiles; experiments with new rifle with long bayonet for Cavalry troops; arming Field Artillery with Carbines; a large increase in machine guns detachments; experiments with automatic rifles, and with trav-

eling kitchens for use in the field; the replacing of the revolver by an automatic pistol, model of 1908; the use of motor cycles at maneuvers, and the preparation of new cavalry drill regulations, and of separate regulations for maneuvers.

NAVY. In 1908 the effective German navy consisted of 24 first-class battleships, aggregating 286,990 tons; 8 armored coast defense vessels, 32,800 tons; 12 armored gunboats, 12,970 tons; 8 armored cruisers, 79,800 tons; 5 protected large cruisers, 31,146 tons; 28 protected large cruisers, 80,983 tons; 11 unprotected small cruisers, 16,800 tons; 9 gunboats, 6,164 tons; 69 destroyers, 20,237 tons; 47 torpedo boats, 7,080 tons. Total, 221 ships, of 584,970 tons, besides 1 submarine, with 54,409 officers and men. The increase in tonnage in 1907 was 32,543. There were also 5 convertible cruisers ranging from 5,400 to 19,300 tons. The number of battleships under construction was 6, of 98,400 tons; armored cruisers 2, of 30,000 tons; besides 6 small cruisers and minor craft. By the navy law of 1900 there were to be constructed by 1918 two double squadrons of a flagship and 8 battleships each; together with the usual complement of cruisers and other vessels, and a reserve squadron of 4 battleships. In 1908 a supplementary law was adopted, reducing the age limit of battleships from 25 to 20 years, in consequence of which 18 battleships will have to be built, both new and in substitution of the obsolete ones, and the number laid down annually increased. By the law of March, 1908, the number of battleships of the *Dreadnought* class (19,000 tons) to be laid down annually for the four years 1908-1911 was raised to 4, and it was also provided that in the six years 1912-1917 the existing protected cruisers shall be replaced by large armored cruisers. Germany during the year was spending enormous sums on the development of Wilhelmshaven as a great naval base, on Heligoland as a fortified harbor for torpedo boats and other small craft, and on the widening of the Kiel Canal to permit its use for the largest of the new battleships.

GOVERNMENT. Emperor Wilhelm II., born Jan. 27, 1859, ascended the throne June 15, 1888. The Chancellor of the Empire in 1908 was Prince von Bülow. The Secretaries of State were as follows: Foreign Affairs, W. von Schoen; Interior, Dr. von Bettmann-Hollweg; Navy, Admiral von Tirpitz; Justice, Dr. A. Nieberding; Exchequer, von Sydow; Colonies, B. Dernburg. Chief of the General Staff, Count von Moltke.

HISTORY.

FINANCIAL DIFFICULTIES. On the assembling of the Reichstag, Baron von Stengel, Secretary of the Treasury, having encountered opposition to the revenue measures which he proposed, resigned and was succeeded by Dr. von Sydow, formerly head of the Imperial Telegraphs and Telephones, who started immediately and energetically at the work of financial reform. It was evident that radical measures of reform were necessary, the deficits having recently increased, and large loans having been required to meet them. Since 1877, when the milliard from France was exhausted, the Empire has followed the policy of meeting deficits by loans, and in every year but one since then there was an addition to the national debt which in 1908 stood at \$1,013,000,000, entailing an annual cost in interest

and in expenses of administration of \$380,000,000. Between 1895 and 1908, the debt doubled, and during the first eight years of the twentieth century the expenditures have been \$471,000,000 in excess of the revenues, or about \$53,000,000 per year. The cause of this has been the enormous expenditure on the army and navy, coupled with the inadequate sources of revenue, which consist mainly of customs duties and internal taxes on various commodities, in other words, of the product of indirect taxation, which varies with the prosperity of the country. Direct taxation having been assumed by the separate states, the Empire could not impose either an income tax or a national property tax. During the five years ending with 1908, national expenses increased by \$93,000,000, of which \$73,000,000 was due to the army and navy; a far greater percentage of increase than in any other nation. According to the government estimates in 1908, new loans and extraordinary expenses would increase the national debt in 1913 by \$238,000,000; of which \$124,000,000 was for carrying out the shipbuilding programme, in addition to the ordinary naval expenditures. The government, however, did not emphasize these obvious army and navy items in accounting for the increase, but referred to the increase of salaries and pensions in the civil service, the arrears of the States in their contributions, the amortization of the public debt, and the loss of revenue from the reduction of the sugar tax and the abolition of the railway tax.

In spite of her pressing needs, Germany has not tapped certain sources of revenue so thoroughly as has been done in other countries, for example, liquors and tobacco. Brandy and alcohol yielded only 67 cents per capita, as against \$2.70 in England; beer, 20 cents, as against \$1.16 in England; tobacco, 32 cents, as against \$1.65 in England; and while England gets \$93,000,000 from the estates of decedents, Germany has had a tax on collateral heirs only since 1906, and this tax has yielded little. On the other hand, certain taxes have been very high. For example, the state and local taxes in many Prussian towns and country districts range as high as 12 to 15 per cent., and the richest taxpayers in many Bavarian cities have paid 15 or 16 per cent. Dr. von Sydow's new tax programme, presented early in November, comprised the following leading features: A partial monopoly by the government of the manufacture and sale of spirits, the government to purchase the products of distilleries, to refine them and sell them to retailers—expected to yield \$24,000,000; an increased excise duty on beer, to yield \$24,000,000; an increased excise duty on tobacco, to yield \$18,000,000; an increased tax on wine, including excise duty on still wine in bottles, to yield \$5,000,000; death duties, to yield \$22,000,000; tax on electricity and gas, to yield \$12,000,000; tax on playcards, posters and newspaper advertisements, to yield \$8,000,000; the remainder to come from assessments on the states by raising the matricular contributions from 40 pfennigs to 80 pfennigs per capita. The total yield from these sources was estimated at about \$120,000,000. Although the fate of these proposals was undecided at the close of the year, it was evident from the vigorous opposition to some of them that success was doubtful. The tax on beer was exceedingly unpopular. As to the death duties, the state was to be re-

garded as the next heir in the settlement of interstate properties, after children, parents, grandparents, brothers, sisters and their descendants. Estates worth less than 20,000 marks were exempt. Beginning with 20,000 marks the tax is one-half per cent., and it reaches a maximum of three per cent. with estates worth \$238,000; whereas in England the tax ranges from 1 to 15 per cent. The measure was opposed by the landed aristocracy on the ground that it offended the feelings of family. The bill permitted the tax on land to be paid in instalments within a period of twenty years. In spite of its moderate character it seemed probable that the conservative element, including the large land-owning classes, would defeat it. The tax on electricity and gas, which affected a vast number of industries, also encountered serious opposition; and the tax on newspaper advertisements was vigorously denounced in the press. The debate on the budget began on Dec. 5, and the Finance Minister's proposals were referred to committee. The year closed amid great uncertainty as to the means of providing the necessary revenue. Prussia also had to face a serious financial problem. Baron Rheindaben announced that in 1907 trade having declined, especially in the iron industries, there was at the close of the year a deficit of \$14,000,000 to \$15,000,000, and that the year 1908 would probably show no better balance. When the Landtag met in October, the speech from the throne declared that nearly \$49,000,000 was needed for the revenue. The tax programme submitted in October involved heavy increases, including the increase of the income tax and the levying of a progressive tax on the profits of trading and industrial companies. In Prussia there was opposition to the government's programme which was submitted on October 20, and on December 5 the progressive taxation of the trading and industrial companies was rejected. The increase of the income tax was modified and limited to two years.

ASSOCIATION LAW. One of the chief events in the Parliamentary record of 1908 was the passage in the Reichstag of the new law concerning associations and public meetings which placed their regulation for the first time on a national basis. Each State of Germany had legislated singly in this matter and there was great diversity in the laws. Even comparatively conservative opinion had, for a long time, demanded the unification of the superannuated and inconsistent laws of the North German States, Prussia, Saxony, Hamburg, Brunswick and Mecklenburg, where the police exercised almost unlimited surveillance, and where women were excluded from taking any part in public meetings or political associations. In the South German States the existing laws are more liberal. The new measure limited the police power of dissolution, and provided that only in case of public meetings should the police be notified. It introduced a more liberal system than that which prevailed in the North German States, especially in Prussia. The main opposition was directed against the language clause. As first presented by the government the bill forbade the use of any foreign language at public meetings, but in this encountered such vigorous opposition that it was obliged to accept a compromise. As amended, the language clause provided that in the dis-

tricts where 60 per cent. of the population habitually spoke a foreign language, it could be employed at public meetings during twenty years. It was required that the police should receive three days' notice. The prohibition of the use of non-German language does not apply to international congresses or to the meetings of electors for the election of members to the Reichstag and of the legislatures of the Federated States and Alsace-Lorraine; it also admits exceptions through the legislation of the separate States, and declares that the central authorities of each German State may, if there are no State laws to the contrary, permit exceptions to the rule. The clause as thus modified was opposed by the Centre, the Socialists, Poles, and some disaffected Liberals, but was carried on April 4th by a small majority, the main part of the law having been carried in the previous month. The argument against it was that it would prevent a large number of Poles and of the residents of Alsace-Lorraine from participation in public affairs. But this was denied, since so many of the Polish districts had a population of more than 60 per cent. speaking the Polish language that the application of the law would be very limited. The language clause applies only to public meetings, not to associations. Though the Association Law as a whole was severely criticised, it was generally regarded as substituting a somewhat more liberal system for the existing one.

BOURSE LAW. One reason for the Liberal support of the Association Law was the fact that certain concessions had been made to them in connection with the law concerning stock exchange operations (the Bourse Law). The Conservative elements, including the Centre, favored stricter measures than at present in regard to stock exchange operations. On the other hand, the present law was, in the opinion of the Liberals, already too stringent. The measure which the Conservatives proposed not only forbade term purchases in grain, but increased the penalties for infractions. The provisions were modified to meet the demands of the Liberals with the results that the restrictions on the Bourses were made less severe in certain respects. One feature of the new law was aimed at making it more difficult for swindling speculators on the stock exchange to secure court sanction of the repudiation of debts incurred in stock transactions.

THE BLOC AND PARTY POLITICS. The bloc in the Imperial Diet was made up of Conservatives, Anti-Semites, National Liberals, and Radicals, a heterogeneous mass, whose members were so discordant that they themselves did not believe the alliance could long endure. It lasted through 1908, however, and by means of it some important legislation was secured, namely, the Association Law and the Bourse Law above mentioned. It was, in effect, the means of self-preservation of its component groups against the rising power of the Social Democrats, but there were signs in 1908 that the Liberals felt that they were required to sacrifice too much to that end. The Liberal support of the bloc after the government's curt refusal to sanction universal suffrage in Prussia, which was sharply criticised throughout the country, led to the withdrawal of a number of advanced Radicals under Dr. Barth. The immediate occasion was the controversy over

the action of the majority in the Reichstag in voting for the language clause of the Association Bill.

At a Congress of the Liberal Union at Frankfort-on-Rhine, at Easter, Dr. Barth and about twenty of the more radical members declared their final separation from the party, contending that the *bloc* had demoralized liberalism which was fast descending into opportunism. The new group desired its freedom to pursue purely liberal ends. It could not accept a policy which sacrificed party principles to the interest of the *bloc*. The Liberal attitude toward the question of Prussian universal suffrage and toward the language clause of the Association Law seemed instances of such sacrifice. The new group wished to represent precisely the democratic tendencies of the bourgeois, aiming at an alignment with the Socialists on the one hand and with the Democratic element in the Centre on the other. This approach toward the Socialists was significant since they were regarded by the Liberals generally as their most deadly foes. The cardinal principle of the new party, however, was that all means must be employed to check reaction in the government, and that Democratic elements, wherever found, must coöperate to that end.

The Socialists welcomed this alliance, and during the elections for the Landtag their sympathies were openly shown, and actual coöperation between the two parties was evident in certain instances. Another important party quarrel arose among the Social Democrats. The deputies of the party in the Landtags of Baden and Bavaria decided, at a General Conference in August, to vote the entire budget without reserve, although they had hitherto refused to do so. Revisionist tendencies have been on the increase in South Germany where the democratic element is stronger in the party than the socialistic. The reasons assigned for the change of attitude toward the budget were that the budget comprises the best means of realizing the social reforms that they desired, and that in the South German States of Bavaria, Württemberg, Baden, and Hesse much progress has been made in the direction of democracy, owing to electoral reform. In these States the Socialists have the same rights as others, while it is not so in North Germany, especially in Prussia. Hence, a different attitude was very desirable. The action of the South German Social Democrats was condemned by the orthodox Marxists who controlled the organization of the party and the Central Committee. See the article SOCIALISM.

NAVAL QUESTIONS. In announcing and explaining the German naval policy, Chancellor von Bülow declared in answer to criticism at home and abroad that the government policy was purely defensive and that Germany desired peace with England and did not dispute the latter's right to a programme which would insure her the supremacy of the sea. In spite of vigorous opposition in the Reichstag, the Navy Bill, calling for the construction by 1917 of 17 battleships, of which 7 were of the large type, and 19 small cruisers, was passed in March. Three battleships and one cruiser of the *Dreadnought* type were to be built each year up to and including 1910; 2 battleships and 1 cruiser in 1911; and thenceforth during

the six years, 6 battleships and 6 cruisers of the heaviest type. It was estimated that the Navy Law would increase the ordinary naval budget to \$95,000,000 by 1917 as compared with \$55,000,000 in 1907, and that the cost of the shipbuilding programme would, in addition, be about \$124,000,000. The German Navy League opened its annual meeting at Danzig on June 14th, and a resolution was passed declaring that the League represented national aims and not a party policy. The dissensions in the League continued and General von Keim declined to stand for reelection. It was declared in the press that the League was no longer necessary, German sentiment having been already won over to the policy of maintaining and increasing the navy. The opinion was also expressed in many quarters that a propagandist of the type of General von Keim was no longer needed.

In July it was announced by General von Keim that 140,000 members had seceded from the organization. The presidential committee of the League, during its session at the end of September, declared that it could not intervene in the dispute between the extreme supporters of General von Keim and his opponents. It was resolved that the government be urged to bring the cruiser squadrons up to date and that the navy be provided at once for the maintenance of the defenses. On Mar. 7, the *Nassau*, the first of the battleships of the *Dreadnought* type, had been launched. The cost was estimated at \$9,100,000; her displacement was 17,960 tons, and her minimum speed, 19 knots. A companion vessel, the *Ersatz Sachsen*, was in process of construction. (See BATTLESHIPS.) The Conservatives were opposed to the naval programme, arguing that such an increase in the navy was not only inconsistent with the former policy of Germany, but was injurious to the army which was in even greater need of increase. In the Conservative press it was declared that all that was necessary was to make sure that German coasts and German ports were secure from attack. The party stood for the interests of the army against the navy, therein opposing the Liberals, who were champions of the navy. Their organ pointed out that though ten years ago German naval expenditure was less than one-third that in England, it was now more than one-half, and that no other power had increased its expenditures so rapidly. At the Pan-German Congress, which opened on Sept. 6, it was declared by the President that any agreement in regard to naval armaments would be a suicidal course for Germany to take. As in 1907, the alarm in England over Germany's increasing naval expenditures showed itself on many occasions. One notable instance occurred early in the year on the announcement in the press that the Kaiser had written a letter to Lord Tweedmouth, which it was alleged marked a design to interfere in the affairs of the British Admiralty. (See GREAT BRITAIN, paragraphs on History.) On the Emperor's side, it was said that although he had written to Lord Tweedmouth, it was a purely personal matter and he had made no attempt to interfere with British policy, but merely to correct certain wrong notions in England as to the German fleet.

FOREIGN AFFAIRS. The main interest in German diplomacy during the year was cen-

tred in the difficulties with France that arose over the Moroccan question (see FRANCE, paragraphs on *History*) and the negotiations arising from the problems in the Balkans (see BALKAN QUESTION). Germany took part in an important arrangement concluded early in the year for the settlement of the status of the powers on the Baltic. On Nov. 2, 1907, a treaty had been signed between Norway and the four great Powers in the North of Europe, Germany, France, Great Britain and Russia, whereby the integrity of Norway was guaranteed. (See NORWAY.) On Apr. 3, 1908, an agreement was signed at St. Petersburg for the maintenance of the *status quo* in the Baltic by Germany, Russia, Sweden, and Denmark, and on the same day a like agreement was signed at Berlin for the Powers on the North Sea by Germany, Great Britain, France, Denmark, the Netherlands, and Sweden. These instruments bound the signatory powers to maintain the *status quo* on the Baltic and North Seas and to preserve the territorial rights of the countries in those regions. If the *status quo* were threatened they agreed to take steps toward joint action in maintaining it. In the Baltic Convention the sovereign rights of Russia were specifically reserved, and both conventions contained an express statement to the effect that nothing in the agreement should be construed as curtailing the sovereign rights of any of the signatory powers to their possessions. The intervention of Germany for the purpose of securing the recognition of Mulai Hafid in Morocco (q. v.) and the subsequent withdrawal of this proposal was criticised both in the German and foreign press as a blunder of diplomacy. Similar criticism was occasioned by the German demand of France that she should tender an apology in the matter of the seizure of the Casablanca deserters, before reference of the dispute to arbitration, and Germany's subsequent withdrawal of that demand. (See FRANCE, paragraphs on *History*.) On the other hand, Chancellor von Bülow warmly defended the German diplomatic policy, and in a speech in December said that when no question had been raised as to the fact that French officers had interfered with the German Consulate, Germany had been obliged to insist that an apology should precede the reference of the affair to arbitration, but when France placed this fact in question, Germany naturally was ready to agree to a simultaneous expression of regret. He declared that it was not a defeat for German diplomacy but a triumph of common sense. He further remarked that too much was made of the matter of prestige and petty diplomatic victories, and that Germany did not need that sort of prestige. See INTERNATIONAL ARBITRATION.

A great deal was said in 1908, as in the previous year, on the subject of "German isolation." In a speech delivered by the Emperor in the summer, there occurred a remark to the effect that if foreign nations were trying, as they seemed to be, to bring Germany to bay, the Germans were ready to meet them and that his people never fought better than when they had to defend themselves on all sides. Relations with England continued to be the object of much attention, and much was said about the attempt to isolate Germany after the meeting of King Edward and the Czar at Reval. There were signs of apprehension, not only in

the press, but even in official quarters, but this was allayed somewhat after the Kaiser and King met at Kronberg and after the conciliatory speeches on the part of British public men. The source of this feeling was indeterminate and could not be attributed to any definite causes. It was remarked on the occasion of the Manœuvres of the British fleet in the North Sea, how little the policy of the two governments was affected by these vague fears, for while the British warships were in the neighborhood of the German coast, the German fleet was manœuvring in the neighborhood of the Canaries, leaving the entire coast line of their own country exposed. The main source of these fears was, of course, the supposed rivalry of the two Powers in shipbuilding.

The Inter-Parliamentary Union was held at Berlin in the middle of September. Chancellor von Bülow made a speech in which he applauded the work and aims of the Congress and the part Germany had played in promoting peace and arbitration. Baron von Plener, former Austrian Minister of Finance, reported on the question of obligatory arbitration and submitted a resolution for a treaty among all the Powers, providing for obligatory arbitration. This was unanimously adopted. The Congress also resolved to invite the Powers to a third Hague Conference, to which the following principles should be submitted for adoption: Contraband of war to consist only of weapons, ammunition, and other necessities of war designed for the use of one of the belligerents; a ship carrying contraband not to be destroyed, or the part of its cargo that is not contraband; private property inviolable; open ports never to be blockaded. The German and British representatives having made it a condition of attendance that the question of reduction or limitation of armaments should be avoided, nothing was said on that subject. The Congress closed on Sept. 13.

Germany's position in the Balkan difficulty was embarrassing, for, on the one hand, she was the friend of Turkey, and, on the other, the ally of Austria. There was much discussion at first as to the alleged jealousy of Germany of the close relations between Great Britain, France, and Russia, and of a tendency to divide Europe into two groups, one centring around those three Powers, and the other around Germany and Austria. M. Isvolsky, the Russian Minister of Foreign Affairs, after visiting France and Great Britain, and discussing the proposal of a conference of the signatory Powers to the treaty of Berlin, visited Germany and conferred with the Emperor and Chancellor von Bülow. Germany at length agreed to the proposals as drafted by Great Britain, France, and Russia, subject to the exclusion of topics which Austria did not wish to have discussed. In the course of an explanation of Germany's Balkan foreign policy, in December, Chancellor von Bülow declared that the German government was not unfriendly to the Turkish movement, but, on the contrary, would be glad to see the new régime strengthened. She must be loyal to Austria, however, and she must therefore leave the initiative in the Balkan Question to other Powers. The question of the Kaiser's personal participation in the foreign affairs of Germany and the trouble arising from the publication of his interview in a British newspaper, are discussed in the following paragraph. In March the Emperor and Em-

press passed a week in Venice on their way to Corfu, where the Emperor had purchased the Villa Achilleion, formerly owned by Empress Elizabeth of Austria. At the same time, Prince von Bülow visited Austria and held a conference with the Austrian Premier. On April 10, the Imperial party reached Corfu and were visited by the Greek Royal family. Early in May the Emperor and Empress, with their suite, were present at the opening of the restored castle of Hochkönigsburg in Alsace-Lorraine. On Aug. 4, they visited the King and Queen of Sweden. On Sept. 11 the Emperor again visited Alsace-Lorraine, and journeyed through the country in a motor car. On Nov. 6 he visited the Emperor Francis Joseph.

THE KAISER'S INTERVIEW. One of the most discussed events of the year was the publication, on October 28th, in the London *Daily Telegraph*, of an interview with the Kaiser on the subject of his attitude and that of the German people toward Great Britain. It appeared that the Kaiser had talked with a number of Englishmen on this subject with great frankness, and that one of them, thinking it would tend to allay British suspicion of Germany, wrote out what had been said to him and others in the form of an interview. He then submitted it to the Kaiser, asking his consent to its publication, and the Kaiser sent it to Chancellor von Bülow for consideration, who, not suspecting that it was an interview with the Kaiser, turned it over to one of his subordinates, who read and reported favorably on its fitness for publication. Thereupon, von Bülow returned it to the Emperor with his approval. It was put forth as a "calculated indiscretion" for the purpose of allaying the hostility of British opinion toward the Kaiser. It declared that while the prevailing sentiment of the middle and lower classes of Germany was anti-English, the Kaiser and the minority, including the best elements in the country, were friendly to England. During the Boer War the attitude of the German people toward Great Britain was, he admitted, bitterly hostile, but not that of official Germany. He pointed to his refusal to receive the Boer delegates, though other European States had received them, and his declining to take part in any concerted action to put pressure on England for the ending of the war; also to his sympathetic reply to the Queen during the week of disasters in December, 1899, and to his working out of a plan of campaign and sending it to England after it had been submitted to his general staff for criticism, and he added that the actual plan of campaign followed very nearly the same lines. He dwelt on the importance of a powerful fleet for the protection of German commerce, and particularly as a safeguard in case of trouble in the Far East, adding that if China and Japan increased in power, only great naval powers would be treated with respect, and that Great Britain herself might welcome a strong German fleet. His interviewer, having said that there had been general complaint because the German Minister, Dr. Vassel, had returned from Tangier to Fez, the Kaiser said that the German subjects in Fez were asking for aid and protection, and he wished to know whether his critics were aware that a French representative had been in Fez several months before Dr. Vassel was sent out. The publication of this remarkable interview immediately aroused the severest criti-

cism, not only in foreign countries, but in the German press, and even in quarters that hitherto had been very loyal to the Kaiser. In France, England, and Russia, the press pointed to many inconsistencies between the statements in it and what had actually occurred at the time. In France it was said that the Emperor must have been misinformed as to the Fez affair, since after the Foreign Consul left Fez, there had been no French representative there, and that there was not even now. In Russia it was warmly denied that there had been unfriendliness to England during the Boer War, and it was said, on the other hand, that Germany had done her best to instigate Russian hostilities, and that, in fact, the Kaiser was one of the inciters of the Boers. More important, however, was the effect of the publication in Germany.

CRITICISMS OF THE EMPEROR. On reading the interview in the newspaper, Chancellor von Bülow informed the Emperor that he had not read the draft, but regarded himself as responsible, and tendered his resignation. This, however, the Emperor refused to accept. An important debate began in the Reichstag on Nov. 11, before a crowded house, in which were present all the Ministers and all the members of the Federal Council. The frank and fearless criticism of the Kaiser that followed was without precedent in German parliamentary history. There was a nearly unanimous protest against Imperial interference in Germany's foreign policy. The leading speakers of the chief parties in the Reichstag united in condemning his course. Though it was formerly the rule not even to mention the monarch's name in a debate, this rule had lately been more or less disregarded, and now the Reichstag went to the length of openly rebuking him. Herr Bassermann read a declaration by the central committee of the National Liberal party, which declared that the present interference of the Kaiser in matters of foreign policy was neither for the good of the Empire nor in accord with the constitution. He said he hoped that this was the last time they would have to approach the Kaiser on this subject.

The Radical leader made an even stronger speech along similar lines, and others, of much the same tenor, followed. Most of the speakers denied the statement in the interview that the majority of Germans were hostile to Great Britain. Prince von Bülow, in reply, said that the interview was evidently made up by linking together the remarks made by the Kaiser to certain English private persons, and that their details presumably were not all correct. What was said about the military plan of campaign for the Boer War was, he knew, incorrect. There was no detailed plan of campaign. It was merely a matter of academic opinions. As far as the attitude of Germany toward Great Britain at the time of the Boer War was concerned, he said that the German government had warned the Transvaal that, in the event of a war with England, it would stand alone. Moreover, Germany's attitude toward intervention had for a long time been well known. Certain other passages in the article were, he said, too strong, the colors having been laid on too heavily. The publication having failed to produce the intended effect in Great Britain, and having caused great regret to the Germans, he believed "the Kaiser would in future observe, even in private conversation, that measure of self-restraint

which is indispensable alike for a uniform policy and for the authority of the crown." The Chancellor, however, declared that he did not wish to make a scapegoat of any of his subordinates and that he accepted entire responsibility. He promised that such a mistake, which had arisen from a defect in the administration of his office, would not occur again. The debate continued on the following day, and other speeches condemning the interview were made. On Nov. 17, the Chancellor met the Kaiser at Potsdam and presented to him the state of opinion as to his action. According to the official report the Kaiser received this explanation seriously, and replied that, in spite of the exaggerated character of the criticism, he regarded it as his highest duty to safeguard the stability of the policy of the Empire, and that he approved the statements of the Chancellor in the Reichstag. The Kaiser's subsequent conduct showed that he took the censure of his people much to heart. For some time he abstained almost entirely from those public functions in which he was accustomed to participate with such frequency and zeal, and lived for a while in comparative retirement.

THE QUESTION OF RESPONSIBLE GOVERNMENT. Discussion of the objectionable interview raised at once the question of ministerial responsibility. In article 17 of the Constitution, all Imperial decrees and orders except those relating to military affairs, must be countersigned by the Chancellor, who "undertakes responsibility," but this does not establish the principle of parliamentary control. There may be votes of censure and interpellation, but there is no power to remove the Ministry. Prince von Bülow's resignation was merely a personal matter between the Kaiser and himself. The Social Democrats, in their discussion of the interview, pointed to the fact that unless the Ministry could be made to resign there was no way of compelling the monarch to keep within the constitutional limitations. The incident was taken by the Social Democrats and Radicals as pointing a moral for ministerial responsibility. It was demanded that the Chancellor should be made responsible to the Reichstag and subject to impeachment for the acts of the Kaiser, and a number of motions for the reform of the Constitution in this direction were introduced. On Dec. 2, they came up for debate. These motions had been put by Poles, Socialists, the Centre, and the Radicals. There was great difference of opinion upon them, and a commission of twenty-eight members was finally appointed to consider them. No report had been rendered at the close of the year.

THE PRUSSIAN SUFFRAGE QUESTION. The reform of the antiquated Prussian electoral system was much discussed in the closing months of 1907. Very early in 1908 the question reached an acute stage. On Jan. 10, the date fixed for the discussion of the subject in the Landtag, the motion for suffrage reform was introduced. It required universal, direct and equal suffrage with secret ballot in elections to the Lower Chamber. According to the existing system the voting power is based on the amount of taxes paid, the electors being divided into three classes: First, those who pay the highest taxes; second, those who pay the moderate taxes; and third, the great mass of the small taxpayers; each class paying one-third of the whole amount of taxes. These constitute the indirect electors who choose the direct electors,

one-third being chosen by each class. The direct electors in turn choose the representatives to the lower house of the Landtag. In the first class is included only a small fraction of the electoral body, from 3 to 5 per cent.; in the second class 10 to 12 per cent., and in the third class about 85 per cent. Thus the electors chosen by less than 25 per cent. of the population outnumber those selected by the rest of the nation by 2 to 1. Moreover, there has been no distribution of seats for over forty years, with the result that great disparity in the ratio of representation has come about. For example, in East Prussia there is one deputy for 63,000 inhabitants, while in Berlin there is one for 170,000. The Radical programme included therefore a redistribution of seats on the basis of the last census. There were many demonstrations in favor of the measure, and numerous petitions were received by the Landtag. On Jan. 10, the approaches to the building were thronged, and there was great popular excitement. Chancellor von Bülow flatly opposed the motion, declaring that he could not accept any modification of the present electoral system, because it would not accord "with the interest of the state." He said: "Every sound reform of the franchise will have to secure and maintain the influence of the great mass of the middle class upon the result of the election, and consequently will have to aim at reestablishing an equitable gradation in the weight of the different classes of votes." There was great disappointment among the people at this outcome, and on Jan. 12 there were some demonstrations in the streets of Berlin, organized by the Social Democrats. Crowds gathered in several parts of the city and there were conflicts with the police, in the course of which some shots were fired and several persons wounded, both in the crowd and among the police. Many arrests followed. There were outbreaks of a less serious nature in other cities. The attitude of the Liberal party toward this defeat occasioned much comment. The support of the Liberals in the Reichstag was necessary for the existence of the *bloc*, on which the Chancellor and the government depended for the passage of their measures. The Liberals had frequently asserted that the reform of the Prussian electoral system was vital to the Empire, and had implied that they would regard the Chancellor's attitude toward this question as a measure of his sincerity in making advances toward the Liberal party. In fact, they had positively declared that they would withdraw from the *bloc* if no concessions were made in this matter. Nevertheless, they accepted the Chancellor's curt refusal and took no measures to carry out their threat. The Socialists being shut out of Parliament began a campaign of popular agitation, whose first fruits were the riots above mentioned. The Liberal voters in their associations condemned the action of their representatives as cowardly, and demanded that they make good their promise to withdraw from the *bloc*. The Liberal deputies went so far as to establish a central Parliamentary commission to work for electoral reform and collect votes for that purpose, but for several months nothing definite was accomplished.

In April Chancellor von Bülow explained his opposition to the question of the Prussian franchise as follows: It was, he said, a matter of doubt in many minds whether the

universal franchise which existed for the Reichstag had all the advantages that were attributed to it. So far as the example of Great Britain was concerned, he said that it was to be noted that there the franchise was not universal, equal and direct. Experience of the system in the case of the Reichstag proved that too little attention was paid to qualifications of intelligence and political experience. Again, in the Empire, taxes were levied on articles of consumption, whereas in the States direct taxation proportioned to the taxpayers' means was the rule. Moreover, in Prussia municipal and communal governments had been successfully administered, and the Liberal element in them predominated; yet they were under the three-class system. Finally, the change would substitute for any existing evils the great evil of a predominant social democracy.

POLISH EXPROPRIATION. On Feb. 27, the Prussian Upper Chamber, after the pressing intervention of the Chancellor, passed the Polish Expropriation Bill. This measure, which was the subject of heated discussion not only in Germany, but all over the world, comprised the following essential points: It gave the state the right to acquire if necessary by expropriation land amounting to not more than 173,000 acres, in order to strengthen and round out the German settlements in West Prussia and Posen, by means of additional allotments of land to German colonists. Consecrated land in burial places, land belonging to churches and religious societies and recognized charitable institutions, if acquired before Feb. 26, 1908, were exempt. Friends of the measure contended that this was the only way in which the safety of the German element could be insured. The members of the *bloc* were divided on the question. The Radicals and the Centre in the Lower House and the titled landowners in the Upper House were against it. Most of the university professors and the mayors of the Liberal municipalities were for it. It was intended to prevent the German element from leaving the West Prussian Polish provinces and it was declared to be necessary on account of the high price to which land had been forced up in those provinces. The government said that it had asked for this authority as a recourse in case of necessity, but hoped that it would only rarely be enforced. The bill gave the government authority to borrow \$65,000,000 for this purpose and for carrying out its policy of settlement. In the foreign press the bill was severely criticized. The Polish novelist Sienkiewicz was especially active in arousing foreign opinion against it. He called it an unprecedented act and an insult to civilization and justice, and declared that the European press had branded it as infamous. A circular letter drafted by him was sent to all parts of the world by the Polish Press Information Bureau of Paris. It called forth many indignant protests from prominent men against the policy of the Prussian government. Thus the well known publicist, Anatole Leroy-Beaulieu, called the law a measure of spoliation directed against Prussian subjects who had committed no other crime than to move in defense of their own national language, and whose rights Prussian kings had sworn to respect when they took possession of Posen. Chancellor von Bülow, on Feb. 26, during the debate that preceded its passage in the Upper House, de-

clared that foreign comments should remain a matter of indifference to the Germans.

PRUSSIAN ELECTIONS. The elections to the Prussian Landtag, held on June 7, resulted in the return of seven Socialists, who thus for the first time gained admission to the Landtag. The campaign was not so much taken up with the question of electoral reform as had been expected, but the Socialists made a special feature of it. The new Landtag was constituted as follows, figures of the former session being given in parentheses; Conservatives, 152 (144); Free Conservatives, 60 (64); National Liberals, 64 (76); Radical People's Party, 28 (24); Radical Union, 8 (9); Centre, 105 (96); Poles, 15 (15); Social Democrats, 7 (0); Danes, 2 (2); Independents, 2 (5): Total, 443. The Liberals did not make a strong fight for universal suffrage during the campaign, for that would have involved an alliance with Socialism for which they were not prepared. They joined in a number of districts with the Conservatives, especially where it was a question of fighting against the Socialists. The Conservatives welcomed this alliance, but opposed the Liberals wherever there was no danger from the Socialist vote, especially in the eastern part of the Kingdom. As a result the Conservatives gained eight seats, the Centre gained nine seats over the National Liberals, owing to the alliance between the Centre and Socialists in the West; the Liberals suffered a marked decline. The greatest change was the appearance of the Socialists for the first time in the Landtag. Not only did they get seven seats in the Landtag (6 from Berlin and 1 from Hanover-Linden) but in a good many districts they decided the fate of the elections. This was due in some measure to the support of the disaffected Liberals and also to the effect of the new application of the income tax law, which changed the relations between the voting classes and resulted in a new distribution of districts in some of the large cities, and in Berlin the addition of new districts, largely Socialists. Although seven was a very small portion of the total number of members, the Social Democratic deputies were expected to wield considerable influence, owing to the large number behind them in the country. The Landtag held a brief session at the end of June, merely as a matter of form to prevent the necessity of assembling in the summer time, and the regular session opened in October. Some surprise was caused in the October meeting by the announcement in a speech from the throne that electoral reform was indispensable and would be undertaken during the coming session. It was not expected that the concessions would be of a nature to suit the reformers, but the announcement occasioned alarm among the Conservatives, whose press declared that they would defend the monarchy against the monarch.

THE SCHÜCKING AFFAIR. The Conservative gains in the Prussian Landtag elections placed the Liberal elements on their guard against reactionary tendencies. They found such a tendency in the course taken by the government in the affair of Dr. Lothar Schücking, Mayor of Hasum in Schleswig-Holstein, who had published the year before an anonymous work on the reactionary movement in Prussia, in which he attacked certain abuses incident to the power exercised in the state by the military and noble caste, the bureaucrats, and the rich student bod-

ies. The attack was mainly directed against administrative abuses. He had afterwards published in the Berlin *Tageblatt* and the *Hilfe*, under his own name, articles in which he again attacked the abuses mentioned in his book, thereby revealing himself as the author. The government then began proceedings against him, founding them on the charge that by publishing this book he had shown himself unworthy of the confidence and consideration that a mayor should enjoy. As there was nothing else against him, either as a mayor or as a private person, this action raised the question whether a simple declaration of opinion, disagreeable to the government, could afford a basis for disciplinary proceedings, and it was argued by the Liberals that if the principle on which the action was based held true in this case, there was nothing to prevent similar proceedings against any mayor whose ideas were displeasing to the government. Moreover, most of the mayors were of Liberal tendencies, and Dr. Schücking himself had been offered as a Liberal candidate. Hence, the Liberals declared that the government was attacking the party upon whose support of the *bloc* their own policy depended. The semi-official declaration that the proceedings were the work of subordinates, and that their superiors could not interfere, was not taken seriously by the critics. The government was attacked by the National Liberal and Independent press, and even by some Conservatives, and the Liberals again made their threat of withdrawing from the *bloc*.

THE HARDEN TRIAL. In 1907 the attacks by Maximilian Harden, editor of the *Zukunft*, on the personal character of Prince Eulenburg and Count Kuno von Moltke led to the bringing of a libel suit against Harden by Count von Moltke. Harden's charges had occasioned great scandal, having alleged gross misconduct on the part of members of the Court circle, and disclosed what was sensationally termed a "morass of infamy" in the army. The prosecution ended on Jan. 4, 1908, with a verdict of guilty against Harden, who was sentenced to four months' imprisonment and payment of costs. An appeal was taken to the Imperial Court at Leipzig. Gen. Hohenau and Count Lynar were court-martialed in January for complicity in the Harden affair; the former was acquitted, but the latter was sentenced to fifteen months' imprisonment. Partial vindication for Harden came in May, when Prince Eulenburg was arrested on charges of immoral conduct, after a long investigation by the authorities. Bail was refused. Owing to the illness of Prince Eulenburg the case had not come to trial by the end of the year.

OTHER EVENTS OF THE YEAR. During the year the question of unemployment was very pressing. In January meetings of the unemployed were held and resolutions were passed calling on the state to carry out its building and other projects, to remit the customs and excise duties on the necessities of life, and to remove all restrictions on the freedom of association. There was a debate on the subject in the Reichstag on Nov. 13, in the course of which a Socialist Deputy said that the sick fund indicated that at least 400,000, that is to say, about 3 per cent. of the working class, were out of employment. The Secretary of the Interior declared that the crisis was international and that other countries were even worse off. The iron, steel and textile industries suffered

the most heavily. During a debate in the Reichstag on Mar. 19th, a remark of one of the speakers having occasioned some laughter, another deputy, attributing the disorder to the newspaper men present, referred to the members of the press in insulting terms. Whereupon the newspapers, with the exception of some Catholic Centre organs, refused to report the Reichstag proceedings until an apology was made. The apology was made on Mar. 24 by the offending deputy, and the press resumed its reports. In August it was announced that the question of admitting women to the universities was settled in their favor. It was provided that women who are subjects of the empire may be admitted on the same footing as men, but if they come from other countries, special permission from the Minister of Public Instruction must be obtained. On Aug. 19, new regulations for the higher education of girls in Prussia were issued, placing the higher girls' schools on the same footing as the corresponding class of boys' schools. In March the Chancellor defined the government's policy in regard to Alsace-Lorraine as designed to develop the political status of the provinces, so that it might approximate the constitution of a Federal state. He said that he had approached the various Federal governments for that purpose, and hoped for a solution satisfactory to the population of Alsace-Lorraine. The international conference for the revision of the Berne copyright convention met in Berlin on Oct. 14.

GEVAERT, FRANÇOIS AUGUSTE. A Belgian composer and writer on musical subjects, died on Dec. 28, 1908. He was born in eastern Belgium on July 31, 1828, studied at the Conservatory of Ghent, and, winning the Prix de Rome, went to Italy. Returning to Ghent in 1843, he became organist of a church there and remained for six years. During this period he produced successfully two operas. In 1849 he went to Paris, later travelled through Italy and Germany, and returned to Ghent in 1852. He composed nine operas between the years 1852 and 1861. From 1867 to 1870 he was chorus master at the Opéra in Paris. He became director of the Brussels Conservatory in 1871 and continued to hold that position until his death. His compositions are no longer considered of importance, but his treatise on orchestration and his writings on church music are still consulted as authoritative.

GIBBS, OLIVER WOLCOTT. An American scientist, one of the first Americans to win international fame as a chemist. He died at his home in Newport on Dec. 9th, in his eighty-seventh year, after a career that gave him a reputation as one of the ablest chemists that this country has produced. The esteem in which he was held is to some extent indicated by the fact that he was one of the only two Americans ever elected to honorary membership in the American Chemical Society. He was also an honorary member of the Prussian Royal Academy of Sciences, as well as of the German and London chemical societies. He was one of the founders and a past president of the American National Academy of Sciences. During the Civil War he was active as a member of the U. S. Sanitary Commission, and was one of the founders of the Union League Club of New York. After graduating from Columbia in 1841, Gibbs studied at Berlin under Rammelsberg and Rose, at Giessen under Liebig, and at the Col-

lege of France, Paris. From 1849 to 1863 he was Professor of Physics and Chemistry in the College of the City of New York, then known as the Free Academy. In 1863 he was called to Harvard as Rumford Professor. During the twenty-five years of his active service at Harvard, Wolcott Gibbs was easily the foremost American chemist. His most important contributions to chemistry were the result of valuable work upon the cobalt mines, the platinum metals, and the highly complex double compounds of vanadium, tungsten, and molybdenum. These were all problems of the greatest difficulty, requiring the work of a master for their solution—so difficult, indeed, that some of Gibbs's work for over twenty years remained the only work done in those lines. He also published a very large number of papers dealing with analytical chemistry. Many of Gibbs's methods are still among the best that we have, and the analytical chemist of to-day is continually surprised by the great number and variety of Gibbs's contributions to this field. He was the first to use electrolysis as a means of metal determination, and his electrolytic determination of copper has become one of the classics of electro-chemistry.

In 1887 Gibbs retired from active work at Harvard and became professor emeritus. He did not retire from chemistry, however, but continued to work in a well equipped private laboratory in Newport, R. I., where he made his home for the remainder of his life.

GIBRALTAR. A British naval fortress on the south coast of Spain. Area, $1\frac{1}{8}$ square miles; population (1906), 18,624, exclusive of the garrison. The latter numbered 3874 in 1908-9. The port is free. The revenue and expenditure in 1907 were \$83,804 and \$71,760 respectively. The Governor and Commander-in-Chief in 1908 was General Sir F. W. E. F. Forestier-Walker.

GIFTS AND BEQUESTS. The sum of the gifts and bequests made in 1908 was considerably less than in 1907. In the latter year the amount thus given was considerably over \$150,000,000, while according to the record compiled by the *Chicago Tribune*, from which the list given below is taken, the amount donated in 1908 was \$90,032,090. Of these the donations were \$43,559,648, and the bequests, \$47,372,442. The total amount was distributed as follows: To educational institutions, \$36,552,039; to charities, \$39,729,961; to religious organizations, \$4,413,959; to museums, galleries, and public improvements, \$9,401,631, and to libraries, \$834,500. The most liberal giver in 1908 was Mr. Andrew Carnegie, whose benefactions totalled \$7,457,600. The gifts of Mr. John D. Rockefeller, second in magnitude, amounted to \$2,934,000. Among the notable benefactions were those of Lydia M. Bradley of Peoria, Ill., who willed to the Bradley Polytechnic School \$3,000,000; D. W. James of New York, who bequeathed to charity, \$1,405,000; Mrs. Quincy Adams Shaw, of Boston, who gave for settlement work, \$2,000,000; William W. Smith of New York, who gave \$3,000,000 to charity; Benjamin Rose, Cleveland, Ohio, \$5,000,000 for the same purpose; Frederick C. Hewitt, of New York, who gave to the Metropolitan Museum, \$1,500,000; Henry J. Braker of New York, who bequeathed to Tufts College, \$1,000,000, and George F. Parkman, of Boston, who left to that city for the development of the park system, \$5,500,000.

In the following list, both the names of the donors and the names of the institutions benefited are arranged in alphabetical order. Gifts or less than \$5000 are omitted on account of limitations of space.

Abbot, Mary E., Philadelphia, Pa., gift to charity, \$8000.

Academy of Fine Arts, gift by Lambert, James, Phila., Pa., \$50,000.

Adam, Ivers W., Boston, Mass., gift to Massachusetts Fish and Game Protective Society, \$5000.

Allen, William, Denton, Texas, gift to Southwestern University, \$100,000.

American Bible Society, gift by Bloodgood Cutter, \$665,000; Mrs. Russell Sage, \$200,000.

American College for Girls at Constantinople, gift by Helen M. Gould, New York, \$10,000; Mrs. Russell Sage, New York, \$10,000; Miss Grace Dodge, New York, \$10,000; John H. Converse, New York, \$10,000; unnamed donor, \$50,000.

American Girls School in Palestine, gift by Helen M. Gould, \$6,000.

American Girls School in Egypt, gift by Helen M. Gould, \$15,000.

American Museum of Natural History, gift by Morris K. Jesup, \$1,000,000.

Anderson, Lars, Brookline, Mass., gift to Harvard University, \$25,000.

Anglo-American Hospital, Rome, gift by Mrs. John A. Moore, \$5,000.

Armour, J. V., Chicago, Ill., gift to education, \$10,000.

Armstrong, Thomas M., Pittsburg, Pa., gift to charity, \$10,000.

Army Gymnasium, gift for, by Mrs. Russell Sage, \$25,000.

Astor, Mrs. William, New York, gift to charity, \$5,000.

Athenæum, Hartford, Conn., gift by J. Pierpont Morgan, \$40,000.

Ayer, F. F., New York, gift to charity, \$25,000.

Babb, Mrs. L. L., Minneapolis, Minn., gift to charity, \$30,000.

Bailey, E. W. & Taft, L. D., Chicago, Ill., gift to charity, \$10,000.

Baker, Louisa L., Amherst, Mass., gift to Massachusetts Agricultural College, \$6,000.

Baker, Thurston B., Norwich, Conn., gift to church, \$30,000.

Balmforth, Elizabeth, Saratoga, N. Y., gift to charity, \$750,000.

Banks, A. B., Fordyce, Ark., gift to Clary Training School, \$25,000.

Barbour, William, Paterson, N. J., gift to charity, \$20,000.

Barnard, Caroline, M., Everett, Mass., gift to charity, \$50,000; gift to Harvard University, \$6,000; gift to Tufts College, \$6,000.

Barr, William, West Orange, N. J., gift to charity, \$55,000; gift to Washington University, \$100,000.

Barrett, Curtis, Stafford, Vt., gift to Norwich University, \$100,000; gift to town, \$25,000; gift to church, \$10,000.

Barton, Mrs. Robert, Paterson, N. J., gift to charity, \$5,000.

Barton, Joseph L., Marshall, N. Y., gift to charity, \$260,000.

Basin, Wyo., gift of library by Andrew Carnegie, \$15,000.

- Batcheller, George S., Saratoga, N. Y., gift for library, \$100,000.
- Bates College, gift by Andrew Carnegie, \$50,000.
- Battles, Joseph A., Fitchburg, Mass., gift to charity, \$50,000.
- Beals, Charles L., Winchendon, Mass., gift to library, \$24,000.
- Beebe, E. E., Meredith, N. H., gift to church, \$30,000; gift to library, \$10,000.
- Beloit College, gift by Charles G. Stark, Milwaukee, Wis., \$10,000.
- Beloit College, gift by D. K. Pearsons, Chicago, Ill., \$25,000.
- Bennett, Mary J., Buffalo, N. Y., gift to charity, \$100,000.
- Berea College, gift by Andrew Carnegie, \$200,000; by unnamed donor, \$50,000; by various donors, \$80,000; by John T. Newton, Toledo, O., \$20,000.
- Berea College, Branch of, gift by Mrs. Russell Sage, New York, \$25,000.
- Betcher, Margaret, Red Wing, Mich., gift to charity, \$20,000.
- Bill, M. D., Springfield, Mass., gift for playground, \$40,000.
- Bixby, William G., Chicago, Ill., gift of library to Vergennes, Vt., \$200,000.
- Blackstone, Mrs. T. B., Chicago, Ill., gift to Y. M. C. A., \$25,000; gift to church, \$10,000.
- Blake, W. D., Melrose, Mass., gift to charity, \$10,000.
- Blount, Archibald H., London, Eng., gift to Yale University, \$450,000.
- Bogardus, Mr. & Mrs. C., Pellston, Mich., gift to University of Michigan, \$55,000.
- Bonney, Jesse L., Norfolk, Va., gift for Home for Girls, \$280,000.
- Bookwalter, John W., Springfield, O., gift to charity, \$5,000; to Wittenberg College, \$30,000.
- Boston, Mass., gift for park improvements by Geo. F. Parkman, Boston, Mass., \$5,500,000.
- Boston Athenæum, gift by Geo. F. Parkman, Boston, Mass., \$50,000.
- Boston College, gift by various donors, \$40,000; by W. F. Fitzgerald, Brookline, Mass., \$10,000; by various donors, \$130,800.
- Bowdoin College, gift by Ellen M. Chandler, Brunswick, Me., \$5000; gift by various donors, \$200,000; gift by various donors, \$253,000; gift by Andrew Carnegie, \$50,000.
- Bradley, Lydia M., Peoria, Ill., gift to Bradley Polytechnic School, \$3,000,000.
- Bradley Polytechnic School, gift by Lydia M. Bradley, \$3,000,000.
- Braker, Henry J., New York, gift to Tufts College, \$2,500,000.
- Bray, Mellen, Newton, Mass., gift to charity, \$1,000,000.
- Brearly, Annie B. S., Philadelphia, Pa., gift to charity, \$10,000.
- Bridgton Academy, gift by various donors, \$20,000.
- Briggs, George B., Newton, Mass., gift to Yale University, \$75,000.
- Brockfield, Helen, Sterling, Ill., gift to charity, \$60,000.
- Brown, Mary A. B., Baltimore, Md., gift to church, \$5,000.
- Browne, John B., Chicago, Ill., gift of business school, \$1,000,000.
- Browning, W. H., Galesburg, Ill., gift to Knox College, \$100,000.
- Bryn Mawr College, gift by various donors, \$34,500.
- Burbank, G. S., Fitchburg, Mass., gift to charity, \$440,000.
- Burke, Michael, Boston, Mass., gift to charity, \$5,000.
- Burt, Mary, Philadelphia, Pa., gift to charity, \$9,000.
- Busch, Adolphus, St. Louis, Mo., gift to Harvard University, \$50,000.
- Business School, gift of, by John B. Browne, Chicago, Ill., \$1,000,000.
- Butler, James, New York, gift to religious order, \$100,000.
- Byington, Alice, Stockbridge, Mass., gift to Hampton Institute, \$360,000; to Tuskegee Institute, \$50,000; to Mount Hermon School, \$25,000; to Northfield Seminary, \$25,000.
- Cagger, Peter, Albany, N. Y., gift to church, \$5,000.
- Callinan, W. F., Bryn Mawr, Pa., gift to charity, \$50,000.
- Card, Elizabeth A., Cleveland, O., gift to church, \$16,500.
- Carey, Arthur A., Boston, Mass., gift to Copley Society, \$20,000.
- Carnegie, Andrew, library to Enid, Okla., \$17,500; Bowdoin College, \$50,000; Bates College, \$50,000; Wittenberg College, \$5,500; Berea College, \$200,000; library to East Orange, N. J., \$19,000; Morgan College, \$50,000; additional gift to Newberry College, \$25,000; University of Denver, \$50,000; library to Bemidji, Minn., \$10,000; library to San Leandro, Cal., \$10,000; library to Youngstown, O., \$50,000; Beloit College, \$20,000; Stevens Institute, \$10,000; Illinois College, \$75,000; library to Collingwood, O., \$17,500; library to Howard University, \$50,000; additional gifts to library, Durango, Colo., \$2,500; gift to Carnegie Foundation, \$5,000,000; Wells College, \$40,000; Society of Mechanics and Tradesmen, New York, \$200,000; Carthage College, \$20,000; Stevens Institute, \$10,000; library to Houghton, Mich., \$15,000; additional gift to library at Hickman, Ky., \$2,000; library to Basin, Wyo., \$15,000; Christian College, \$30,000; library to Chelsea, Mass., \$50,000; for miners' relief, Wigan, England, \$7000; to Hero Fund for Great Britain, \$1,250,000; Republican Campaign Fund, \$25,000; Gustavus Adolphus College, \$42,500; church organ, \$10,000.
- Carr, Lucy E., Somerville, Mass., gift to charity, \$5,000.
- Carter, Mrs. Levi, Omaha, Neb., gift of park to city, \$50,000.
- Carthage College, gift to, by Andrew Carnegie, \$20,000; by various donors, \$100,000.
- Catholic High School for Girls, gift by Mrs. F. C. Penfield, Philadelphia, Pa., \$100,000.
- Catholic Missions, gift by various donors, Chicago, Ill., \$100,000.
- Cepilan, C. C., Libertyville, Ill., gift to education, \$60,000.
- Chandler, Ellen M., Brunswick, Me., gift to Bowdoin College, \$5,000.
- Chandler, R. D., San Francisco, Cal., gift to charity, \$8,000.
- Chelsea, Mass., gift of library by Andrew Carnegie, \$50,000.
- Christian College, gift by Andrew Carnegie, \$30,000.
- Clark, C. B., Neenah, Wis., gift for hospital, \$100,000.

Clark, William B., Stockbridge, Mass., gift to charity, \$20,000; gift to church, \$20,000; gift to library, \$20,000.

Clark College, gift by Joseph A. Battles, Fitchburg, Mass., \$5,000.

Clary Training School, gift to, by A. B. Banks, Fordyce, Ark., \$25,000.

Clougherty, S. J., Boston, Mass., gift to charity, \$5,000.

Cole, E. H., Brooklyn, New York, gift to St. Lawrence University, \$10,000; gift to Columbia University, \$100,000; gift to charity, \$19,000; gift to church, \$15,000.

College of Physicians, gift by Annie W. Penfield, Philadelphia, Pa., \$50,000.

Columbia University, gift to, by Henry F. and Ella D. P. Shoemaker, New York, \$10,000; gift by children of Orlando Harriman, \$100,000; gift by unnamed donor, \$22,600; gift by E. H. Cole, N. Y., \$100,000.

Conaty, Mary A., Derby, Mass., gift to charity, \$6,000.

Conley, Sarah, Pittsburg, Pa., gift to charity, \$500,000.

Converse, John H., New York, gift to American College for Girls at Constantinople, \$10,000.

Converse, M. E., Winchendon, Mass., gift to Rindge, N. H., \$10,000; gift to Soldiers' Memorial Building, \$10,000.

Copley Society, gift to, by Arthur A. Carey, Boston, Mass., \$20,000.

Cotton, George A., Philadelphia, Pa., gift to charity, \$35,000; gift to Temple College, \$10,000.

Crane, Thomas, heirs of, gift and library to Quincy, Mass., \$10,000.

Crane, Zena, Dalton, Mass., gift to Peary Expedition, \$10,000.

Crawford, Alexander, Philadelphia, Pa., gift to charity, \$18,300.

Crozer Theological Seminary, gift to, by Samuel A. Crozer, Chester, Pa., \$10,000.

Crump, G. A., Philadelphia, Pa., gift to charity \$5,000.

Cudahy, Michael, Chicago, Ill., gift to church, \$5,000.

Cumming, Peter, New York, gift to charity, \$60,000.

Cunningham, Thomas, New York, gift to charity, \$63,000.

Currier, B. W., Lynn, Mass., gift to charity, \$20,000.

Curtis, T. W., New York, gift to school at Sheffield, Mass., \$5,000.

Cutter, Bloodgood, Hempstead, L. I., gift to American Bible Society, \$665,000.

Dartmouth College, gift by John Ordonaux, \$30,000.

Dauberspeck, Philip, Butler, Pa., gift to church, \$5,000.

Davenport, Cyrus B., New York, gift to church, \$11,000.

Deaconess' Hospital, Denver, Col., gift by various donors, \$50,000.

Deering, William, Evanston, Ill., gift to Maine General Hospital, \$25,000.

Deering, William, Chicago, Ill., gift to Y. M. C. A., \$10,000.

Denison University, gift by John T. Newton, Toledo, O., \$50,000.

De Vinney, Elizabeth L., Glendale, Mo., gift to charity, \$11,000; gift to Woman's College, Baltimore, \$10,000.

Dodge, Miss Grace, New York, gift to American College for Girls at Constantinople, \$10,000.

Donnelly, Patrick, Arlington, Mass., gift to charity, \$5,100.

Donovan, Catherine, New York, gift to church, \$20,000.

Douglas, W. L., Brockton, Mass., gift to charity, \$10,000.

Drake, George S., St. Louis, Mo., gift to charity, \$12,000; gift to church, \$7,500.

Drown, A. M., San Francisco, Cal., gift to church, \$50,000.

Dulany, W. H., Hannibal, Mo., gift to charity, \$10,000.

Earhart, W. J., Philadelphia, Pa., gift to charity, \$25,000.

Early, Sarah L., Philadelphia, Pa., gift to charity, \$10,000.

Eastman, Jane, Manchester, N. H., gift to charity, \$5,000.

East Orange, N. J., library by Andrew Carnegie, \$19,000.

Edson, Mary, Lowell, Mass., gift to charity, \$20,000.

Elmendorf, Joachim, New York, gift to church, \$5,000.

Elve, Cyrus D., Philadelphia, Pa., gift to Temple University, \$5,000.

Ely, Smith, New York, gift to Sunday School Union, \$50,000.

Emery, Mary W., Cincinnati, Ohio, gift to Ohio Mechanic Institute, \$500,000.

Emory College, gift to, by various donors, \$100,000.

Enid, Okla., gift of library by Andrew Carnegie, \$17,500.

Erhard, Margaret, New Windsor, Md., gift to church, \$7,000.

Evans, Nancy D., Butler, Pa., gift to church, \$75,000.

Evans, W. T., Montclair, N. J., gift to charity, \$50,000.

Evenson, Ouden, W. Salem, Wis., gift to Norwegian Lutheran College, \$40,000.

Farwell, John V., Chicago, Ill., gift to Moody School, \$52,000.

Farwell, J. V. and Son, Chicago, gift to Y. M. C. A., \$25,000.

Fassett, Theodore S., Buffalo, N. Y., gift to Y. M. C. A., \$10,000.

Fearing, Henrietta S., Newport, R. I., gift to charity, \$10,000; gift to library, \$5,000; gift to schools, \$7,500.

Fernie Relief Fund, gift by James J. Hill, New York, \$5,000.

Ferris, Mrs. C. G., Detroit, Mich., gift to Missionary Training School, \$20,000.

Field, Mrs. Marshall, Chicago, Ill., gift to Theodore Thomas Orchestra Ass'n., \$5,000.

Filbert, Annie C., Philadelphia, Pa., gift to church, \$130,000.

Finch, John, Oakland, Cal., gift to Gettysburg College, \$100,000.

Fire sufferers, gift to, by James J. Hill, St. Paul, Minn., \$5,000; by various donors, \$30,000.

Fisk University, gift by John T. Newton, Toledo, O., \$5,000.

Fiske, David E., Chicago, Ill., gift to charity, \$122,500.

Fitzgerald, W. F., Brookline, Mass., gift to Boston College, \$10,000.

Flanagan, Mary., Philadelphia, Pa., gift to charity, \$10,000.

Folsom, Eliza F., Exeter, N. H., gift to charity, \$14,000.
 Ford, Mrs. E. L., Detroit, Mich., gift to school at Hazel Green, Ky., \$10,000.
 Fort Sam Houston, library to, gift by citizens of San Antonio, Tex., \$75,000.
 Fox, Virginia L. W., Washington, D. C., gift to church, \$17,000.
 Foye, P. T., Savannah, Ga., gift to charity, \$7,000.
 Francis, Daniel, Des Moines, Ia., gift to Preachers' Aid Society, \$40,000.
 Frank, Bertha R., Baltimore, gift to National Farm School, \$10,000.
 Franklin Institute, gift of Annie W. Penfield, Philadelphia, Pa., \$50,000.
 French, Mary D., Manchester, N. H., gift to church, \$5,500.
 Gage, N. L., Topeka, Kansas, gift to charity, \$20,000.
 Garmoe, Isaac, Fort Dodge, Ia., gift to Morningside College, \$25,000; gift to church, \$25,000.
 George Washington University, gift to, by John H. Hammond, New York, \$10,000; gift by John Ordonaux, N. Y., \$5,000.
 Gettysburg College, gift to, by John E. Finch, Oakland, Cal., \$100,000.
 Girls' Catholic High School, Philadelphia, gift by unnamed donor, \$100,000.
 Goeckus, Barbara H., Baltimore, Md., gift to charity, \$10,000.
 Gould, Elizabeth, Fairview, Conn., gift to charity, \$115,000.
 Gould, Helen, N. Y., gift to American College for Girls at Constantinople, \$10,000; gift to American Girls School in Palestine, \$6,000.
 Griffin, Walter T., Brooklyn, N. Y., gift to charity, \$250,000.
 Gustavus Adolphus College, gift to, by Andrew Carnegie, \$42,500.
 Hagan, Arthur, Philadelphia, gift to charity, \$5,750.
 Hager, Lisette, Buffalo, N. Y., gift to charity, \$62,000; gift to church, \$13,000.
 Hamilton, Irenus K., Chicago, gift to charity, \$10,000.
 Hamilton, Samuel, Pittsburg, Pa., gift to charity, \$11,000.
 Hammond, John H., New York, gift to George Washington University, \$10,000.
 Hampton Institute, gift by Alice Byington, Stockbridge, Mass., \$360,000.
 Haner, Barbara, Lancaster, Pa., gift to charity, \$5,000.
 Hardy, F. A., Chicago, Ill., gift to charity, \$15,000.
 Harper Memorial Fund, Chicago, Ill., gift by various donors, \$5,000.
 Harriman, Orlando, children of, gift to Columbia University, \$100,000.
 Harris, Norman, W., Chicago, gift for educational purposes, \$40,000.
 Hart, James A., Wilmington, Del., gift to charity, \$9,000.
 Harvard Music Association, gift by Julia M. Marsh, Boston, Mass., \$50,000.
 Harvard University, gifts by Grace M. Kuhn, Boston, Mass., \$350,000; by Lars Anderson, Brookline, Mass., \$25,000; by George F. Parkman, Boston, Mass., \$50,000; by Adolphus Busch, St. Louis, Mo., \$50,000; by Caroline M. Barnard, Everett, Mass., \$6,000; by Amy Sheldon, Newport, R. I., \$300,000; class donation, \$106,000.

Harvard University Dental School, gift to, by various donors, \$24,000.
 Hatch, L. F., Vineland, N. J., gift to charity, \$40,000.
 Hazel Green, Ky., gift to school by Mrs. E. L. Ford, \$10,000.
 Head, Betsy, New York, gift to city, \$187,746.
 Hebrew Institute, gifts by various donors, \$15,000.
 Hero Fund for Great Britain, gift by Andrew Carnegie, \$1,250,000.
 Hewitt, Frederick, New York, gift to charity, \$245,700; to Metropolitan Museum, \$1,500,000; to library, \$30,000; to Yale University, \$500,000.
 Hewitt, H. B., Albion, N. Y., gift to church, \$32,000.
 Hewitt, Harriet W., Albion, N. Y., gift to church, \$30,000.
 High School Athletic Field, Louisville, Ky., gift by unnamed donor, \$50,000.
 Hildreth, Amelia, New York, gift to church, \$20,000.
 Hill, James J., St. Paul, Minn., gift to fire sufferers, \$5,000; to Wesley College, \$25,000.
 Hill, James J., New York, to Fernie Relief Fund, \$5000.
 Hills, Alfred K., New York, gift of library to Hudson, N. H., \$20,000.
 Historical Society, gift by Annie W. Penfield, Phila., Pa., \$50,000.
 Holman, Mrs., and sister, New York, gift to charity, \$40,000.
 Home for Girls, gift by Jesse T. Bonney, Norfolk, Va., \$280,000.
 Houghteling, James L., Chicago, Ill., gift to Y. M. C. A., \$10,000.
 Houghton, Michigan, gift of library by Andrew Carnegie, \$15,000.
 Howard University, gift of library by Andrew Carnegie, \$50,000.
 Hubb, Mary L. D., Detroit, Mich., gift to Mount Holyoke College, \$10,000.
 Hudson, N. H., gift of library by Alfred K. Hills, New York, \$20,000.
 Hurlberg, Margaret E., Brooklyn, N. Y., gift to charity, \$5,000.
 Husted, Mrs. J. H., Denver, Colo., gift to Yale University, \$8,000.
 Hutchinson, E. H., Buffalo, N. Y., gift to charity, \$10,000.
 Illinois College, gift by Andrew Carnegie, N. Y., \$75,000; by various donors, \$50,000.
 Industrial Christian Alliance, gift to found home for unemployed, N. Y., \$200,000.
 Inslee, Helen C., New York, gift to charity, \$35,000; to church, \$10,000; to museum, \$10,000.
 Iowa University, gift by Otto Kunze, Iowa City, Ia., \$10,000.
 Ives, Mary G., New Haven, Conn., gift to Yale University, \$25,000; to charity, \$13,000; to church, \$6,000; to library, \$50,000.
 James, D. W., New York, gift to Yale University, \$95,000; to charities, \$1,405,000.
 Jeffs, Richard, Seattle, Washington, gift to orphan asylum, \$150,000.
 Jesup, Morris K., New York, gift to American Museum of Natural History, \$1,000,000; to church, \$100,000; to library, \$15,000.
 Johns Hopkins University, gift by James Schouler, Baltimore, Md., \$25,000; by Henry Phipps, Pittsburg, Pa., \$500,000.
 Jones, Mrs. Jerome, Boston, Mass., gift to charity, \$55,000.

Judy, A. B., Potomac, Ill., gift to charity, \$70,000.
 Junkins, Mary L., Newton, Mass., gift to charity, \$27,000.
 Kelly, Mary M., Phila., Pa., gift to charity, \$5000.
 Kemmerer, Sarah, Bloomington, Ill., gift to Y. M. C. A., \$35,000.
 Kennedy, John S., New York, gift to Presbyterian Hospital, \$1,000,000.
 Kent, Wm., Chicago, Ill., gift of 295 acres redwood forest to United States government, valued at \$50,000.
 Knox College, gift to, by W. H. Browning, Galesburg, Ill., \$100,000; by various donors, \$140,000.
 Koering, Gregory, St. Paul, Minn., gift to church, \$19,000.
 Kuhn, Grace M., Boston, Mass., gift to Massachusetts General Hospital, \$10,000; to Harvard University, \$175,000; to Harvard University, \$175,000; to charity, \$10,000.
 Kunze, Otto, Iowa City, Ia., gift to Iowa University, \$10,000.
 Lambert, James, Phila., Pa., gift to Academy of Fine Arts, \$50,000.
 Larimore family, Grand Forks, N. D., gift to Wesley College, \$25,000.
 Latimer, Charles E., New York, gift to Prohibition Party, \$50,000.
 Layton Art Gallery, gift to, by Charles G. Stark, Milwaukee, Wis., \$5000.
 Leattie, Mrs. Grace, St. Louis, Mo., gift for preventing consumption, \$200,000.
 Leonard, John, Montclair, N. J., gift to charity, \$15,000.
 Lester, A. L., Port Chester, N. Y., gift to Y. M. C. A., \$25,000.
 Levick, Henrietta W., Philadelphia, Pa., gift to charity, \$5,000.
 Lewis, Catharine B., Buffalo, N. Y., gift to National Woman's Suffrage Ass'n, \$10,000.
 Lewisohn, Adolph, New York, gift to charity, \$16,000.
 Libbey, E. D., Toledo, O., gift to Toledo Art Museum, \$105,000.
 Lincoln College, gift to, by C. G. McKeown, Bloomington, Ill., \$10,000.
 Little, John, Philadelphia, Pa., gift to charity, \$9,000.
 Lombard College, gift to, by various donors, \$100,000.
 Long Island R. R. Co., gift to Y. M. C. A., \$15,000.
 Long, John, Kansas City, Mo., gift to charity, \$20,000; to church, \$10,000.
 Lowry, Anna L., Philadelphia, Pa., gift to charity, \$533,000.
 Lunenberg, Mass., gift to library, by Caroline E. Watson, Boston, Mass., \$10,000.
 McComb, J. S., New York, gift to Mackenzie School, \$5,000.
 McCormick, Nettie F., and sons, Chicago, gift to Y. M. C. A., \$50,000.
 McCurdy, Hugh, Corunna, Mich., gift to charity, \$80,000.
 MacDowell Rest Home, gift by various donors, \$28,000.
 McGrane, J. J., Brooklyn, N. Y., gift to church, \$15,000.
 Mackay, Clarence H., New York, gift to University of Nevada, \$50,000; to Mackay School of Mines, \$106,000.
 Mackenzie School, gift to, by J. S. McComb, New York, \$5,000.

McKeown, C. G., Bloomington, Ill., gift to Lincoln College, \$10,000.
 McKnight, Sumner T., Minneapolis, Minn., gift to charity, \$56,000.
 McLaughlin, Cecilia E., Philadelphia, gift to charity, \$15,000.
 Maine General Hospital, gift by William Deering, Evanston, Ill., \$25,000.
 Mandel, Emanuel, Chicago, Ill., gift to charity, \$50,000.
 Manly, John W., Seattle, Wash., gift to charity, \$35,000.
 Mansfield, May, New Haven, Conn., gift to charity, \$6000.
 Marc, Theophilus W., Orange, N. J., gift to charity, \$650,000.
 Marsh, Julia M., Boston, Mass., gift to Harvard Music Ass'n, \$50,000; to charity, \$50,000.
 Martin, Daniel, Cincinnati, Ohio, gift to charity, \$14,000.
 Maryville College, gift to, by Mrs. Wm. Thaw, Pittsburg, Pa., \$5,000.
 Massachusetts Agricultural College, gift by Louisa L. Baker, Amherst, \$6,000.
 Massachusetts Fish and Game Protective Society, gift by Ivers W. Adam, \$5,000.
 Massachusetts General Hospital, gift by Grace M. Kuhn, Boston, Mass., \$10,000.
 Mather, William G., Cleveland, Ohio, gift to Trinity College, \$5,000.
 Mayer, Levi, Philadelphia, Pa., gift to charity, \$15,800.
 Mercer University, gift by various donors, \$225,000.
 Metropolitan Museum, N. Y., gift by Frederick Hewitt, \$1,500,000; by Emma A. Tillotson, New York, \$10,000.
 Middlebury College, gift by unnamed donor, \$30,000; by D. K. Pearsons, Chicago, Ill., \$25,000.
 Miscellaneous:
 Unnamed donor, Boston, Mass., gift to charity, \$15,000.
 Unnamed donor, Cambridge, Mass., gift to charity, \$5,000.
 Unnamed donor, New York, gift to the "New Education," \$100,000.
 Missionary Training School, gift to, by Mrs. C. G. Ferris, Detroit, Mich., \$20,000; by various donors, \$11,000.
 Monahan, Patrick, Boston, Mass., gift to charity, \$10,000.
 Monmouth College, gift by Jas. Patton, Chicago, Ill., \$5,000.
 Montague, Peter J., Brooklyn, N. Y., gift to charity, \$34,000.
 Moody School, gift to, by John V. Farwell, Chicago, Ill., \$52,000.
 Moore, Mrs. John A., gift to Anglo-American Hospital, Rome, \$5,000.
 Morgan College, gift by Andrew Carnegie, \$50,000.
 Morgan, J. P., Athenæum, Hartford, Conn., \$40,000; School of Applied Design for Women, \$25,000; to fund for purchase of Glastonbury Abbey, \$25,000; Republican campaign fund, \$25,000; for rebuilding Episcopal churches in San Francisco, \$100,000. Total, \$192,500.
 Morningside College, gift by Isaac Garmoe, Fort Dodge, Ia., \$25,000.
 Mount Hermon School, gift by Alice Byington, Stockbridge, Mass., \$25,000.

Mt. Holyoke College, gift by various donors, \$14,000; by Mary L. D. Hubb, Detroit, Mich., \$10,000.

Muhlenberg College, by various donors, \$180,000; by Andrew Carnegie, \$20,000.

Museum of Art, gift by Margaret J. M. Sweat, to Portland, Me., \$100,000.

National Farm School, gift by Bertha R. Frank, Baltimore, \$10,000.

National Woman's Suffrage Ass'n, gift by Catharine B. Lewis, Buffalo, N. Y., \$10,000.

Newbery College, gift by Andrew Carnegie, \$25,000.

Newhall, Charles H., Lynn, Mass., gift to charity, \$90,000; to church, \$37,000; to library, \$5,000.

Newton, John T., Toledo, Ohio, gift to charity, \$163,000; to Denison University, \$50,000; to Berea College, \$20,000; to Fish University, \$5,000.

New York City, gift to, by Mrs. Russell Sage, \$50,000.

New York State Indian Museum, gift to, by Mrs. F. R. Thompson, \$25,000.

Nichols, Caroline, Newark, N. J., gift to charities, \$7,000.

Norris, Elizabeth, Phila., Pa., gift to church, \$10,000; to charity, \$10,000.

Northfield Seminary, gift by Alice Byington, Stockbridge, Mass., \$25,000.

Northwestern University, gift to, by James A. Patten, Evanston, Ill., \$150,000; by unnamed donor, \$25,000; by unnamed donor, \$250,000.

Norwegian Lutheran College, gift to, by Ouden W. Evenson, Salem, Wis., \$40,000.

Norwich University, gift to, by Curtis S. Barrett, Stafford, Vt., \$100,000.

O'Brien, Mary, Newark, N. J., gift to church, \$10,000.

Ohio Mechanic Institute, gift to, by Mary W. Emery, Cincinnati, O., \$500,000.

Oliver, Hiram P., Bangor, Me., gift to Y. M. C. A., \$55,000; to charity, \$184,000.

Ordonaux, John, New York, gift to George Washington University, \$5,000; to University of Vermont, \$10,000; to Dartmouth College, \$30,000; to charity, \$25,000; to Trinity College, \$10,000; to church, \$12,000; to University of Virginia, \$10,000.

Packer Institute, gift to, by F. B. Pratt, Brooklyn, N. Y., \$10,000.

Parkman, George F., Boston, Mass., gift to Harvard University, \$50,000; to Boston Athenaeum, \$50,000; to charity, \$350,000; to city for park improvements, \$5,500,000.

Parmenlier, Rosina M., New York, gift for a girls' school, \$10,000; to Catholic institutions, \$100,000.

Pastor, Antonio, New York, gift to charity, \$10,000.

Paterson, N. J., gift to hospital by various donors, \$16,000.

Patten, James A., Evanston, Ill., gift to Northwestern University, \$150,000.

Patten, W. N., Boston, Mass., gift to charity, \$5,000.

Patton, James A., Chicago, Ill., gift to Monmouth College, \$5,000.

Payne, Oliver H., New York, gift to University of Virginia, \$50,000.

Peabody, Henry W., Salem, Mass., gift to church, \$10,000.

Pearsons, D. K., Chicago, Ill., gift to Throop Institute, \$25,000; to Pomona College, \$25,000;

to Middlebury College, \$25,000; to Beloit College, \$25,000.

Peary Expedition, gift to, by Zena Crane, Dalton, Mass., \$10,000.

Penfield, Annie W., Phila., Pa., gift to College of Physicians, \$50,000; to Franklin Institute, \$50,000; to charity, \$40,000; to University of Pennsylvania, \$5,000; to Historical Society, \$50,000; to library, \$5,000; to Catholic High School for Girls, \$100,000.

Petit Palais Museum of Paris, gift by unnamed American donor, \$5,000,000.

Petry, Ambrose, New York, gift to Roman Catholic Church Extension Society, \$100,000.

Phillips, C. E., Bangor, Me., gift to charity, \$115,000.

Phipps, Henry, Pittsburg, Pa., gift to Johns Hopkins University, \$500,000.

Pierce, Anna E., Malden, Mass., gift to church, \$15,000.

Pomona College, gift by D. K. Pearsons, Chicago, Ill., \$25,000.

Potter, Martha, Ossining, N. Y., gift to charity, \$100,000.

Pratt, F. B., Brooklyn, N. Y., gift to Packer Institute, \$10,000.

Preachers' Aid Society, gift to, by Daniel Francis, Des Moines, Ia., \$40,000.

Prentice, Anna E., Brooklyn, N. Y., gift to church, \$17,000; to charity, \$17,000.

Presbyterian Church, Rockaway, L. I., gift by Mrs. Russell Sage, New York, \$250,000.

Presbyterian Hospital, N. Y., gift by John Skinner, \$1,000,000; by John S. Kennedy, New York, \$1,000,000.

Presbyterian Seminary of Kentucky, gift to, by J. R. Todd, Louisville, Ky., \$50,000.

Princeton University, gift to, by various donors, \$63,470; by Mrs. Russell Sage, New York, \$250,000; by various donors, \$130,123; by various donors, \$24,000.

Proctor, Redfield, Burlington, Vt., gift to charity, \$10,000.

Prohibition Party, gift to, by Charles E. Latimer, New York, \$50,000.

Quackenbush, Mrs. E. A., New York, gift to church, \$55,000; to charity, \$20,000.

Quincy, Mass., gift and library to, by heirs of Thomas Crane, \$10,000.

Rafferty, Hugh, Scipio Center, N. Y., gift to church, \$5000.

Red Cross Funds, gift to, by Mrs. Russell Sage, New York, \$25,000.

Redding College, gift to, by various donors, \$25,000.

Reid, Mrs. Whitelaw, gift to hospital at San Mateo, Cal., \$10,000.

Reilly, Bridget, Phila., Pa., gift to charity, \$40,000.

Relief fund for fire sufferers, Chelsea, Mass., \$78,692; \$86,482; \$20,440; \$8,909; \$5,823; \$142,491.

Remidji, Minnesota, library to, by Andrew Carnegie, \$10,000.

Renz, Elizabeth, Phila., Pa., gift to charity, \$9,500.

Richmond College, gift by John D. Rockefeller, New York, \$150,000.

Rindge, N. H., gift to, by M. E. Converse, Winchendon, Mass., \$10,000.

Roach, John B., Chester, Pa., gift to charity, \$5,000.

Rochester Academy, Wisconsin, gift by various donors, \$40,000.

Rockefeller, John D., University of Chicago, \$2,191,000; Thomas College, \$60,000; Rockefeller Institute for Medical Research, \$500,000; Tarrytown Hospital, \$50,000; Italian Baptist Church, Providence, R. I., \$4,000; Uncle Remus Memorial Fund, \$10,000; Methodist Church Cleveland, O., \$2,000; Richmond College, \$150,000; Colored Y. M. C. A., Washington, D. C., \$25,000.

Roebing, John A., Asheville, N. C., gift to church, \$500,000.

Roman Catholic Church Extension Society, gift by Ambrose Petry, New York, \$100,000.

Rose, Benjamin, Cleveland, O., gift to charity, \$5,000,000.

Russell, F. W., Pittsfield, Mass., gift to church, \$32,000.

Rutgers College, gifts by various donors, \$34,000; by various donors, \$14,200.

Sag Harbor, N. Y., High School, gift by Mrs. Russell Sage, \$10,000; of playground, \$5,000.

Sage, Mrs. Russell, New York, \$25,000; high school of Sag Harbor, \$10,000; Princeton University, \$250,000; Society for Prevention of Cruelty to Animals, \$4,000; Woman's Exchange, New York, \$10,000; American Bible Society, \$200,000; Pascal Institute, \$2,700; playground to Sag Harbor, \$5,000; Constitution Island to the United States, \$175,000; United States army gymnasium, \$25,000; branch of Berea College, \$250,000; Presbyterian Church, Far Rockaway, \$250,000; Red Cross fund, \$25,000; Long Island Railroad Men's Y. M. C. A., \$100,000; to public schools, \$225,000; to New York park employees, \$1,935.

Sanders, Henry M., New York, gift to Vassar College, \$75,000.

San Mateo, Cal., Hospital at, gift to, by Mrs. Whitelaw Reid, \$10,000.

Saratoga, N. Y., library to, gift by George S. Batcheller, \$100,000.

Sayre, James R., Newark, N. J., gift to charity, \$117,000; to church, \$171,000.

Scholes, John, Philadelphia, Pa., gift to church, \$6,300; gift to charity, \$6,150.

Scholie, Samuel, New York, gift to charity, \$5,000.

School of Applied Designs for Women, gift by J. Pierpont Morgan, New York, \$25,000.

Schouler, James, Baltimore, Md., gift to Johns Hopkins University, \$25,000.

Schrader, George H. F., New York, gift to charity, \$500,000.

Sears, Caroline B., Boston, Mass., gift to charity, \$380,000.

Sechrist, Albert, Denver, Colo., gift to Technical School, \$25,000.

Seligman, Maurice, New York, gift to charity, \$6,000.

Shaw, Jane B., Atlantic City, N. J., gift to charity, \$14,000; to church, \$15,000.

Shaw, Mrs. Quincy Adams, Boston, Mass., gift to settlement work, \$2,000,000.

Shedd, John G., Chicago, gift to Y. M. C. A., \$100,000.

Sheffield, Mass., gift to school, by F. W. Curtis, New York, \$5000.

Sheldon, Amy, Newport, R. I., gift to Harvard University, \$300,000; to charity, \$10,000; to library, \$11,000; to church, \$5,000.

Shiras, Mrs. George, Washington, D. C., gift to church, \$10,000.

Shoemaker, Henry F. and Ella D. P., New York, gift to Columbia University, \$10,000.

Shreffler, John D., Joliet, Ill., gift to church, \$75,000.

Shumway, Eugenia, Polo, Ill., gift to church, \$25,000.

Skinner, John, New York, gift to Presbyterian Hospital, \$1,000,000.

Smith, Bernard, Brooklyn, N. Y., gift to church, \$50,000.

Smith College, gift to, by various donors, \$50,000.

Smith, Loyal E., Atlantic City, N. J., gift to charity, \$750,000.

Smith, Mary R., Philadelphia, Pa., gift to city, \$5,000.

Smith, Mila F., Philadelphia, Pa., gift to charity, \$5,400.

Smith, William, W., gift to charity, \$3,000,000.

Smythe, H. P., Roxbury, Mass., gift to charity, \$20,000.

Society of Mechanics and Tradesmen, New York, gift to, by Andrew Carnegie, \$200,000.

Soldiers' Memorial Building, gift by M. E. Converse, Winchendon, Mass., \$10,000.

Southwestern University, gift by Wm. Allen, Denton, Tex., \$100,000.

Spaulding, Mrs. Keith, Chicago, Ill., gift to charity, \$18,000.

Stamitz, D. D., Roundhead, Ohio, gift to church, \$20,000.

Stark, Charles G., Milwaukee, Wis., gift to charity, \$14,500; to church, \$5,000; to Beloit College, \$10,000, to Layton Art Gallery, \$5,000.

Stearns, Frederick, Estate of, gift to Detroit Museum of Art, \$5,000.

Stevens, Mrs. F. L., New York, gift to charity, \$106,000.

Stevens Institute, gift to, by Andrew Carnegie, \$10,000; by other donors, \$15,200.

Stiles, F. G., Allentown, Pa., gift to church, \$10,000.

St. Lawrence University, gift by E. H. Cole, New York, \$10,000.

Strauss, Isadore I., Richmond, Va., gift to charity, \$6,250.

Sunday School Union, gift by Smith Ely, New York, \$50,000.

Susquehanna University, gift by unnamed donor, \$15,000.

Suydam, Louisa, East Orange, N. J., gift to charity, \$5,000.

Sweat, Margaret J. M., Portland, Me., gift to Museum of Art, \$100,000; to charity, \$8,000.

Swinson, Henry, New York, gift to charity, \$30,000.

Tarrytown Hospital, gift to, by J. D. Rockefeller, New York, \$25,000; by J. D. Rockefeller, New York, \$25,000.

Technical School, gift to, by Albert Sechrist, Denver, Colo., \$25,000.

Temple College, gift to, by George A. Cotton, Philadelphia, Pa., \$10,000.

Temple University, gift by Cyrus D. Elve, Philadelphia, Pa., \$5,000.

Thaw, Mrs. Wm., Pittsburg, Pa., gift to Maryville College, \$5,000.

Thiel, Emeline L., Germantown, Pa., gift to church, \$15,000.

Thomas College, gift by J. D. Rockefeller, New York, \$60,000.

Thompson, Mary A., Malden, Mass., gift to charity, \$40,000.

Thompson, Mrs. F. R., New York, gift to State Indian Museum, \$25,000.

Throop Institute, gift by D. K. Pearsons, Chicago, Ill., \$25,000.

Tillotson, Emma A., New York, gift to Metropolitan Museum of Art, \$10,000; to charity, \$150,000.

Tilton, Caroline S., New Orleans, La., gift to church, \$17,000; to charity, \$20,000.

Todd, J. R., Louisville, Ky., gift to Presbyterian Seminary of Kentucky, \$50,000.

Toledo Art Museum, gift by E. D. Libbey, Toledo, Ohio, \$105,000.

Townsend, Jane S., New York, gift to Yale University, \$50,000.

Trinity College, gift by John Ordonaux, New York, \$10,000; by William G. Mather, Cleveland, O., \$5,000.

Tripp, A. F., Buffalo, N. Y., gift to charity, \$5,000.

Tucker, Winfield, New York, gift to charity, \$75,500.

Tufts College, gift by Caroline M. Barnard, Everett, Mass., \$6,000; by Henry J. Braker, New York, \$1,500,000.

Tuskegee Institute, gift by Alice Byington, Stockbridge, Mass., \$50,000.

Ulmar, Catharine, New York, gift to church, \$10,000.

Union College, gift by various donors, \$100,000.

United States government, gift of 295 acres redwood forest, by William Kent, Chicago, Ill., \$50,000; Constitution Island to, by Mrs. Russell Sage, New York, \$175,000.

University of Denver, gift by Andrew Carnegie, \$50,000.

University of Michigan, gift to, by Mr. and Mrs. C. Bogardus, Pellston, Mich., \$30,000.

University of Nevada, gift to, by Clarence H. Mackay, New York, \$50,000.

University of Pennsylvania, gift by Annie W. Penfield, Philadelphia, Pa., \$5,000.

University of Pittsburg, gift to, by Wallace Will, Pittsburg, Pa., \$50,000.

University of Rochester, N. Y., gift by various donors, \$100,000.

University of Vermont, gift by John Ordonaux, New York, \$10,000.

University of Virginia, gift by John Ordonaux, New York, \$10,000; by Oliver H. Payne, New York, \$50,000.

University of Wisconsin, gift by various donors, \$30,000; by W. F. Vilas, Madison, Wis., \$3,000,000.

Upham, Mary H., Malden, Mass., gift to church, \$8,000.

Upper Iowa University, gift by various donors, \$150,000.

Upton, Albert H., Adams, Mass., gift to charity, \$10,000.

Vanderbilt, Alfred G., New York, gift to church, \$10,000.

Vanderbilt, F. W., New York, gift to Yale University, \$50,000.

Van Dyke, F. C., Paterson, N. J., gift to charity, \$10,000.

Van Read, Anna, Reading, Pa., gift to charity, \$18,000.

Vassar College, gift by Henry M. Sanders, New York, \$75,000.

Vergennes, Vt., library by Wm. G. Bixby, Chicago, Ill., \$200,000.

Vernon, Annie, Baltimore, Md., gift to charity, \$45,000.

Vilas, W. F., Madison, Wis., gift to University of Wisconsin, \$3,000,000.

Vilsak, Leopold, Pittsburg, Pa., gift to charity, \$105,000.

Walker, W. H., and family, Buffalo, N. Y., gift to charity, \$5000.

Warner, George W., Philadelphia, Pa., gift to charity, \$150,000.

Washington University, gift to, by William Barr, West Orange, N. J., \$100,000.

Watson, Catherine, Boston, Mass., library to Lunenburg, Mass., \$10,000.

Wellesley College, gift to, by various donors, \$31,023.

Wells College, gift by Andrew Carnegie, New York, \$40,000.

Wellsville, Pa., gift of school to, by Mrs. Richard Young, New York, \$40,000.

Wesley College, gift to, by J. J. Hill, St. Paul, Minn., \$25,000; by Larimori family, Grand Forks, N. D., \$25,000.

Whitman College, gift by various donors, \$120,000.

Wieboldt, W. A., Chicago, gift to Y. M. C. A., \$30,000.

Will, Wallace, Pittsburg, Pa., gift to University of Pittsburg, \$50,000.

Williams, Elizabeth C., Quincy, Mass., gift to charity, \$5,300; to church, \$9,000.

Wilson, Henry S., New York, gift to church, \$19,000; gift to charity, \$20,000.

Wittenberg College, gift to, by John W. Bookwalter, \$30,000; by Andrew Carnegie, \$5,500.

Woman's College, Baltimore, Md., gift to, by Elizabeth L. De Vinney, Glendale, Mo., \$10,000.

Woman's Exchange, gift by Mrs. Russell Sage, \$10,000.

Wood, Charles E., Washington, D. C., gift to sanitarium, \$300,000.

Wood, Meta J. Connor, Philadelphia, Pa., gift to city, \$20,000; to church, \$12,000; to charity, \$11,000.

Woodcock, Mary A. A., New York, gift to church, \$5,000; to charity, \$20,000.

Wooster University, gift by various donors, \$375,000.

Worthington, George, Pittsfield, Mass., gift to charity, \$50,000.

Wright, Henry W., Newport, N. H., gift to charity, \$5,000.

Wright, J. D., Worcester, Mass., gift to charity, \$60,000.

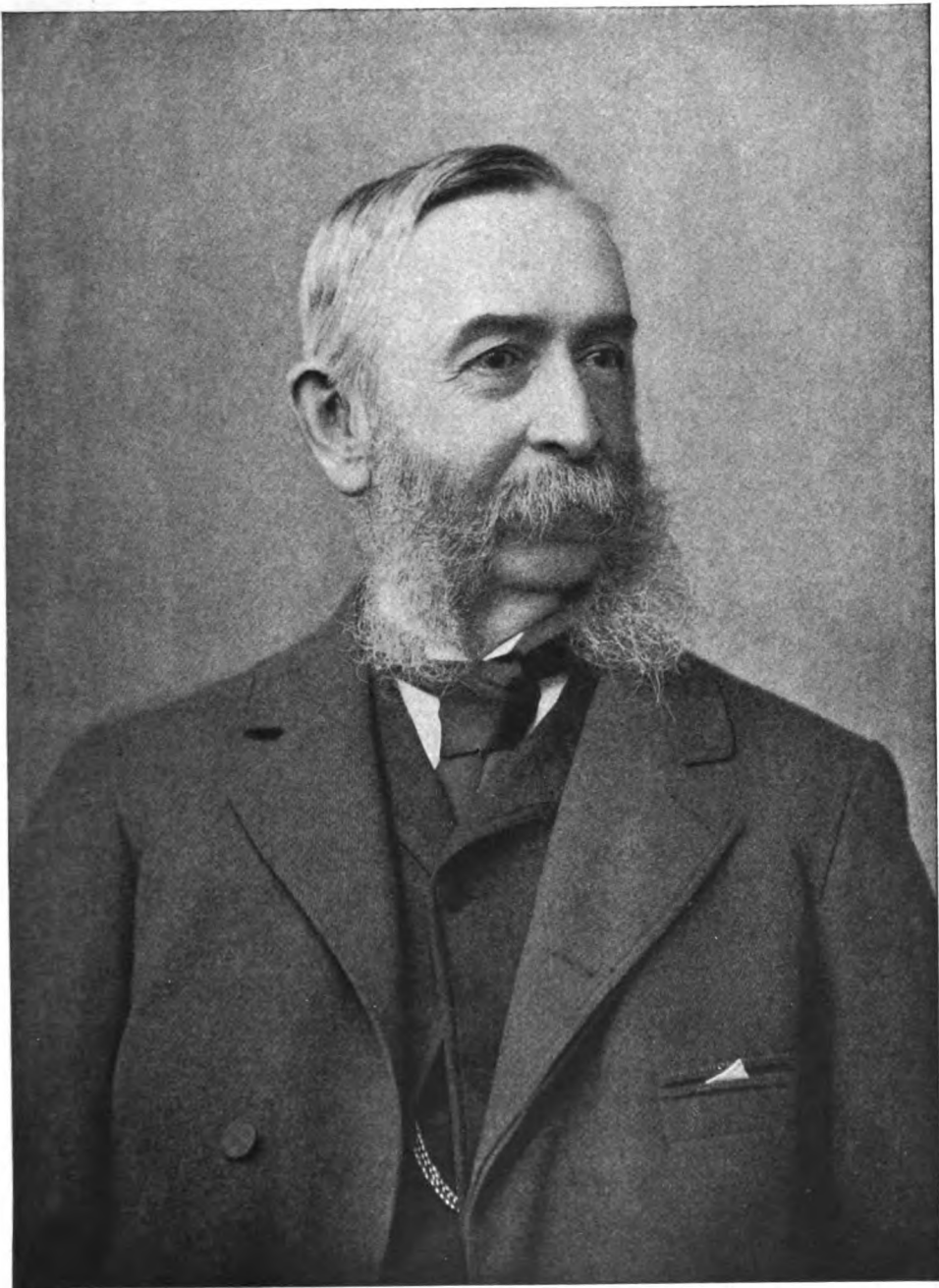
Yale University, gift by D. W. James, New York, \$95,000; by Mrs. J. H. Husted, Denver, Colo., \$8,000; by Jane S. Townsend, New York, \$50,000; by Frederick Hewitt, New York, \$500,000; additional gift, \$805,000; by George B. Briggs, Newton, Mass., \$75,000; by F. W. Vanderbilt, New York, \$50,000.

Y. M. C. A., gift by Hiram P. Oliver, Bangor, Me., \$55,000; by Sarah Kemmerer, Bloomington, Ill., \$35,000.

Y. M. C. A., Chicago, gift by John G. Shedd, Chicago, \$100,000; by W. A. Wieboldt, Chicago, \$30,000; by various donors, \$11,000; by various donors, \$16,278; by various donors, \$58,000; by William Deering, Chicago, \$10,000; by James L. Houghteling, Chicago, \$10,000; by Mrs. C. B. Blackstone, Chicago, \$25,000; by Nettie F. McCormick and sons, \$50,000; by J. Ogden Armour, Chicago, \$25,000; by J. V. Farwell and son, Chicago, \$25,000.

Young, Mrs. Richard, New York, gift of school to Wellsville, Pa., \$40,000.

GILBERT AND ELLICE ISLANDS. Two groups of islands in Polynesia, a British protectorate. Area, 180 square miles; population, 30,300



DANIEL COIT GILMAN

(300 Europeans). On Ocean and Pleasant islands, in the Gilbert group, are phosphate deposits estimated at 50,000,000 tons and controlled by a London company. Chinese, Japanese, and natives are employed in working them. The annual shipment of phosphates is from 250,000 to 300,000 tons, of which 100,000 tons go to Japan, 80,000 to Australia, and the remainder to Europe. Copra is another important export. The Resident Commissioner in 1908 was W. Telfer Campbell.

GILMAN, DANIEL COTT. An American educator, died on Oct. 13, 1908. He was born in Norwich, Conn., on July 6, 1831, graduated at Yale in 1852, continued his studies there for a time and then in Berlin and Cambridge. He was librarian and secretary of Sheffield Scientific School, at Yale, and professor of physical and political geography there, from 1856 to 1872, and president of the University of California from 1872 to 1875, when he was chosen first president of Johns Hopkins University, of which he took charge in the following year. In this position he remained until 1901, when he resigned, having meanwhile done much toward establishing the institution upon a firm foundation by selecting for its faculty either men of widely recognized ability, or younger professors who have since fully justified the wisdom of his selection. Among such men were Professor Gildersleeve, for the Latin and Greek department; William Keith Brooks (q. v.), the biologist; Henry A. Rowland, the physicist; Ira Remsen, the chemist, and James J. Sylvester, the mathematician. Dr. Gilman also had an active part in the organization of the Johns Hopkins Hospital. He was also first president of the Carnegie Institution, and served in that capacity from 1901 to 1904. Dr. Gilman was one of the original trustees of the John F. Slater Fund, a trustee and vice-president of Peabody Educational Fund, and a trustee of the General Education Board. He was appointed by President Cleveland in 1896 a member of the United States Commission on the boundary line between Venezuela and British Guiana, and in the following year was a member of the commission which drafted a new charter for the city of Baltimore. From 1901 to 1907 he was president of the National Civil Service Reform League, succeeding Carl Schurz, and in 1908 he was chosen one of the trustees of the Russell Sage Foundation, established by Mrs. Sage, with an endowment of \$10,000,000. In 1900 he became one of the three editors of the *New International Encyclopædia*. He had published *Life of James Monroe* (1883), in the "American Statesman Series"; *University Problems* (1888); *Life of James D. Dana* (1899), and *Launching a University* (1906).

GIRLS' FRIENDLY SOCIETY IN AMERICA. An organization of the women of one Protestant Episcopal Church, founded in 1877. It bands in one society church women as associates, and young women as members for mutual help, religious and secular. The society is in affiliation with a similar association in England, founded in 1875. It has extended all over the United States, and had in 1908 about 600 branches with a membership of 34,000 women and girls. The president is Miss Mary A. L. Neilson, of Philadelphia, and the secretary, Miss Eve Alexander, of Baltimore, Md.

GLANDERS IN MAN. Acute glanders in the human subject is looked upon as a rare disease, usually contracted by men having to do with horses—coachmen, soldiers, veterinarians, farmers, etc. Several fatal cases among laboratory workers occurring during the year 1908 served to direct attention to this gruesome and fatal disease. The malady is an infection by the *Bacillus malleus*, and is characterized by the appearance of nodular foci of inflammation in the skin, muscles and lungs. It was first described in the fourth century, by Hecker, under the name of "malleus." Royer, in 1837, described the human infection, and in 1840 the contagiousness of the disease was established by animal inoculation. The acute form is generally fatal; in the chronic form the mortality is 40 to 50 per cent. Infection is believed to take place through the nasal mucous membrane, the bacillus having extraordinary penetrative powers, and resisting desiccation for a long period.

GLASS, HENRY. An American rear-admiral, died at Paso Robles, California, Sept. 1, 1908. He was born on Jan. 7, 1844, at Hopkinsville, Ky., graduated at the Naval Academy in 1863, and served until the end of the Civil War in the South Atlantic Blockading Squadron, taking part in several engagements in Charleston Harbor and along the South Carolina coast. He had reached the rank of captain at the beginning of the Spanish War and was assigned to command the *Charleston*, then at the Mare Island Navy Yard, San Francisco. He convoyed the first expedition of troops from San Francisco to Manila, capturing the island of Guam on the way, and took part in the bombardment, resulting in the surrender of Manila, Aug. 13, 1898. He became rear-admiral in 1901 and retired in 1906.

GOLD. The output of gold in the United States during 1908 not only exceeded that of 1907 by 6.5 per cent., but was the largest annual production ever recorded, amounting to \$96,313,300, as compared with \$90,435,700 in 1907, and \$94,373,800 in 1906, which year hitherto had held the record for the greatest production. The gold production for the United States is given in the accompanying table, the statistics for 1908 being the preliminary estimates of the Director of the Mint. South Dakota, Alaska, California, and Colorado showed large increases, ranging from \$2,000,000 to \$3,600,000. The estimates for Utah indicated a decrease of about \$1,200,000; for Nevada a decrease of \$3,300,000. The production of Montana, Arizona, Idaho, Oregon, and other silver-producing States remained approximately stationary. The production from the Philippine Islands showed a gratifying increase, the estimate of the mint being \$306,708, against \$78,700 in 1907. This amount, while not large, seemed to indicate that mining gradually is being established in these islands on a firm basis. As part of the Philippine gold does not reach the United States mints, the showing for the year was probably even better than the figures indicated. Most of the gold was recovered by quartz mining in Benguet and by dredging operations in Paracale.

In the year 1908, six States, Colorado, Alaska, California, Nevada, South Dakota and Utah, each of which for 1907 or 1908, had a production of \$5,000,000, or over, supplied 90.4 per cent. of the total production as given in the accompany-

ing table, while, in addition, there were four other States, Montana, Arizona, Idaho and Oregon, which produced over \$1,000,000 each in 1908. No other State reached a total as high as \$250,000. Recent attempts to increase the output of mines in Alabama and North Carolina did not show any striking results, while from Porto Rico the return was inconsiderable.

The gold-mining industry of the United States had a successful and prosperous year in 1908, in spite of many adverse conditions of trade and finance. The immediate causes operating to increase the output were, in part, the removal of certain abnormal features tending to depress the production in 1907, such as the partial closing of the Homestake mine in the Black Hills of

South Dakota and the labor difficulties in the Mother Lode counties of California.

To some degree the increased production of gold is also indirectly due to the closing of many mines in the base metal camps. A tendency toward increased production by small operators was noted as early as the last months of 1907 and continued through 1908.

The depression in the base-metal industries did not affect the gold production to any considerable degree, for the total base-metal ores contribute only from 9 to 10 per cent. of the normal gold output of the country. The gold from copper ores suffered little reduction, but the small amounts contributed from lead and zinc ores were much reduced.

PRODUCTION OF [GOLD IN THE UNITED STATES, 1906-1908.
(The value of gold is \$20.67 per ounce)

	1906 (a)		1907 (b)		1908 (b)	
	Fine oz.	Value	Fine oz.	Value	Fine oz.	Value
Alabama.....	1,747	\$ 35,900	1,325	\$ 27,400	.....	\$ 43,686
Alaska.....	1,028,113	21,251,100	894,424	18,489,400	.....	20,930,784
Arizona.....	155,965	3,223,800	128,871	2,664,000	.....	2,345,308
Colorado.....	901,495	18,633,900	815,288	16,853,500	.....	19,581,570
California.....	1,101,655	22,771,200	1,010,921	20,897,600	.....	22,811,784
Georgia.....	3,106	64,200	3,135	64,800	.....	48,918
Idaho.....	52,912	1,093,700	60,754	1,255,900	.....	1,450,830
Michigan.....	.....	(c)	.....	.....	.....	198
Maryland.....	.....	.....	.....	.....	.....	20
Minnesota.....	.....	.....	.....	.....	.....	1,265
Montana.....	221,858	4,585,800	167,987	3,472,600	.....	.....
Nevada.....	474,881	9,815,800	745,507	15,411,000	.....	3,322,551
New Hampshire.....	.....	.....	.....	.....	.....	12,090,218
New Mexico.....	12,381	255,900	15,964	330,000	.....	2,306
North Carolina.....	5,931	122,600	3,807	78,700	330,000	240,756
Oregon.....	66,278	1,369,900	59,124	1,222,200	78,700	85,314
Philippine Islands.....	.....	.....	3,130	64,700	.....	1,119,528
Porto Rico.....	.....	.....	58	1,200	.....	.....
South Carolina.....	3,600	74,600	2,811	58,100	.....	58,386
South Dakota.....	300,078	6,822,700	200,185	4,138,200	.....	7,090,294
Tennessee.....	.....	(c)	184	3,800	.....	3,186
Texas.....	.....	(c)	48	1,000	.....	545
Utah.....	250,227	5,172,200	247,758	5,121,600	.....	3,930,290
Virginia.....	.....	(c)	.....	.....	.....	4,321
Washington.....	17,155	352,600	402	8,300	.....	223,189
Wyoming.....	1,277	26,400	12,689	262,300	.....	1,773
Other States.....	20,770	429,100	455	9,400	.....	19,936
Total.....	4,648,385	\$96,101,400	4,374,827	\$90,435,700	90,435,700	96,005,406

(a) *Mineral Industry*, Vol. XV. (b) U. S. Geological Survey and Director of the Mint. (c) Included in other States. a Gold value, \$20.671834625323 per fine ounce.

In the year 1908, the exports of gold from the United States amounted to \$81,215,456, and exceeded the imports by \$30,969,357; whereas in 1907, the excess of imports over exports was \$88,182,391, occasioned by the large amounts borrowed in the financial crisis of November and December of that year, which, in part, were repaid during 1908. In Great Britain also the same relative movement occurred in the two years and the excess of exports in 1908 was occasioned largely by loans to France, which country in both years was engaged in accumulating gold to secure their reserves. The exports of gold were £46,145,314, as compared with £57,088,547 in 1907. The imports in 1908 were £49,969,099, and in 1907 £50,866,009. The excess of exports in 1908 was £3,823,785 and of imports in 1907 £6,222,538. In Germany the excess of imports (\$91,028,000) was \$76,843,000, as against \$5,060,000 excess of exports (\$55,450,000) in 1907.

The output of the gold mines of the world in 1908 showed a substantial increase over that of

1907, practically all the gold-producing states having increases, with the exception of those of Australasia, where a decrease of about \$1,500,000 was noted. This is shown in the following table of approximate production, given in the annual statistical review of *The Engineering and Mining Journal* (New York, Jan. 9, 1909).

GOLD PRODUCTION OF THE WORLD.

	1907.	1908.
United States.....	\$90,435,700	\$96,313,000
Transvaal.....	133,352,381	145,500,000
Australasia.....	75,849,349	74,296,000
Russia.....	26,578,253	27,500,000
Mexico.....	17,820,000	18,750,000
Canada.....	8,264,765	9,350,000
Rhodesia.....	11,266,845	13,288,000
British India.....	10,857,648	10,925,000
West Africa.....	5,627,970	5,800,000
China, Japan and Korea.....	10,403,378	10,500,000
Other countries.....	23,336,336	24,000,000
Total.....	\$413,793,125	\$436,222,000

TABLE II. WORLD'S GOLD PRODUCTION, 1904-1907.

(The value of gold is \$20.67 per ounce.)

	1905		1906		1907	
	Oz. fine	Value	Oz. fine	Value	Oz. fine	Value
North America—						
United States.....	4,265,742	\$ 88,180,700	4,565,333	\$ 94,373,800	4,315,081	\$ 90,435,700
Canada.....	700,863	14,486,833	581,709	12,023,932	399,844	8,264,765
Newfoundland.....	4,550	94,049	4,475	92,500	4,315	89,191
Mexico.....	779,181	16,107,100	805,000	16,639,350	862,119	17,820,000
Central America.....	73,212	1,513,400	58,321	1,208,500	63,328	1,310,000
South America—						
Argentina.....	446	9,200	731	15,100	731	15,100
Bolivia.....	147	3,000	1,064	22,000	1,209	25,000
Brazil.....	117,396	2,426,575	120,948	2,500,000	146,218	3,022,326
Chile.....	30,812	636,900	30,963	640,000	33,624	695,000
Colombia.....	95,513	1,974,400	95,791	1,908,000	96,517	1,995,000
Ecuador.....	6,430	132,900	6,430	132,900	6,193	128,000
Guiana (British).....	82,300	1,701,141	79,682	1,647,031	66,803	1,381,797
Guiana (Dutch).....	34,442	711,916	38,162	788,820	34,883	721,031
Guiana (French).....	86,532	1,788,800	78,028	1,612,863	74,427	1,538,406
Peru.....	17,406	359,782	17,900	370,000	18,500	382,395
Uruguay.....	1,227	25,368	1,210	25,000	1,210	25,000
Venezuela.....	14,512	300,000	14,998	310,000	14,271	295,000
Europe—						
Austria.....	2,283	47,190	2,225	46,000	2,254	46,590
France.....					46,296	956,952
Hungary.....	117,949	2,438,006	117,078	2,423,000	119,598	2,472,090
Germany.....	126,446	2,613,639	135,094	2,792,439	150,526	3,111,372
Italy.....	325	6,718	319	6,600	322	6,645
Norway.....	350	7,234	387	8,000	387	8,000
Portugal.....	40	827	48	1,000	48	1,000
Russia.....	1,063,883	22,197,155	1,087,056	22,469,432	1,282,934	26,578,253
Spain.....	257	5,316	266	5,500	322	6,645
Sweden.....	1,958	42,235	1,984	41,000	1,929	39,872
Turkey.....	1,400	29,000	1,403	29,000	1,447	29,909
United Kingdom.....	13,584	280,781	12,849	266,500	1,891	39,087
Africa—						
Madagascar.....	66,258	1,369,553	56,585	1,169,608	54,012	1,116,428
Rhodesia.....	348,518	7,203,865	479,089	9,902,873	545,082	11,266,845
Transvaal.....	4,897,221	101,225,558	5,786,617	119,609,373	6,451,494	133,352,381
West Coast.....	165,844	3,427,995	199,432	4,122,260	272,277	5,627,970
Asia—						
Borneo (British).....	42,745	883,539	42,332	895,000	42,332	875,000
China.....	85,918	1,776,100	217,688	4,500,000	217,688	4,500,000
East Indies—						
East Indies (Dutch).....	68,526	1,414,500	55,636	1,150,000	60,234	1,245,000
India (British).....	576,889	11,924,308	533,658	11,030,711	524,995	10,857,648
Japan.....	161,105	3,330,300	169,747	3,500,000	164,753	3,403,378
Korea.....	58,055	1,200,000	120,948	2,500,000	120,948	2,500,000
Malay—						
Peninsula.....	18,990	392,522	16,933	350,000	15,627	325,000
Australasia.....	159,220	85,970,779	3,984,538	82,358,207	3,669,636	75,849,349
Other Countries.....	72,570	72,570	72,570	1,500,000	72,570	1,500,000
Totals.....	18,360,945	\$378,411,754	19,504,407	\$405,060,969	19,958,764	\$413,793,125

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GOLD COAST. A British colony in West Africa, on the Gulf of Guinea Area, including Ashanti (q. v.), 119,260 square miles; population (1906), 1,696,965. The largest towns are Accra, the capital, 14,842 inhabitants; Cape Coast Castle, 28,948; Ada, 13,240. In 1907 gold mining yielded 273,898 ounces, valued at £1,163,517, to which Ashanti contributed £329,892, while the gold obtained by dredging was valued at £56,774. The production of cacao in 1907 was 21,744,000 pounds. The export of cotton in 1907 was 56,088 pounds. The imports in 1907, including specie, amounted to £2,366,195 (£1,758,315 from Great Britain); the exports, £2,041,674 (£1,945,626 to Great Britain). The principal imports were: Cotton goods, £508,754; machinery, £161,798; spirits, £133,500; wearing apparel, £82,070; provisions, £88,120; hardware, £54,113; coal, £36,881; building materials, £32,-

520. The principal exports were: Cacao, £515,089; gold, gold dust, and gold concentrates, £1,164,676; lumber, £169,458; palm-kernels, £101,822; palm-oil, £119,468; rubber, £333,120; cola nuts, £78,901. The government railway from Secondi, on the coast, to Kumassi is 168 miles long. The telegraphs have a length of over 1128 miles. The revenue and expenditure in 1907 were £708,718 and £617,124 respectively. The Governor in 1908 was Sir John Pickersgill Roger.

GOLF. Jerome D. Travers, for the second successive year, won the highest golf honors. He was victorious in the national amateur championships at Garden City and in the New Jersey championships at Englewood, and also won the Huntington and Morris County open tournaments. In the national championship

tournament he defeated Max Behr, 8 up and 7 to play, and in the New Jersey championships defeated Behr, who was again runner-up, 11 up and 9 to play. Travers, however, lost to C. H. Seeley in the final round for the Metropolitan championship, after being 6 up at the end of the first round. The women's national championship was won by Miss Kate C. Harley, of Fall River, with Mrs. T. H. Polhemus, of Staten Island, as runner-up. The fourteenth annual open championship tournament of the United States Association resulted in a tie between F. McLeod and W. Smith. In the 18-hole play-off, McLeod won by the score of 77 to 83. Other important tournaments, held in the United States, and their winners were: Metropolitan Open, at Baltusrol, J. Hobens; Western Open, at St. Louis, W. Anderson; Western Amateur Championship, at Rock Island, M. E. Phelps; Southern Amateur Championship, at Memphis, N. Whitney; Middle Atlantic States Championship, at Washington, F. O. Korstman; Eastern Professional Championship, at Fox Hills, Isaac Mackie.

The British open professional championship was won, for the fourth time since 1900, by James Braid, who made the record score of 291 for four rounds. Other foreign tournaments and their winners were: French Championship, at Versailles, J. H. Taylor; German Championship, at Berlin, A. Gordon; Irish Championship, at Newcastle, J. F. Mitchell.

The intercollegiate championship tournament, held at Brae Burn, Boston, was won by the Yale team, which defeated Harvard in the finals by the score of 14 to 9. The individual championship was won by H. H. Wilder, of Harvard, by defeating T. Briggs, 6 up and 5 to play. In the annual dual tournament between Princeton and Williams, the latter was successful by a score of 10 to 4.

GOMEZ, JOSÉ MIGUEL President of Cuba. See CUBA.

GOBE, THOMAS PRYOR, United States Senator (Democrat), from Oklahoma. He was born in Webster County, Miss., on Dec. 10, 1870. At an early age, through accidents, he became totally blind. He graduated at the Walthall Normal School, Miss., in 1890, and from the law department of Cumberland University in 1892; and was admitted to the bar. He practised law for a time in Mississippi, and in 1895 moved to Texas. In 1896 he was delegate to the National Convention of the Populist Party, and in 1898 was defeated for Congress as a candidate of that party. He became identified with the Democratic party in 1899 and two years later moved to Oklahoma. From 1902 to 1905 he was a member of the Territorial Council. In Nov., 1907, he was appointed United States Senator by the Governor, and the following month was elected to that office by the Legislature for the term expiring Mar. 3, 1909. In 1908 he was re-elected for the term expiring Mar. 3, 1915. As Senator in May, 1908, he took an active part in the filibuster against the passage of the Aldrich-Vreeland currency bill.

GOSCHEN, SIR WILLIAM EDWARD. A British diplomat, appointed ambassador to Berlin, to take effect in Oct., 1908. He was born on July 8, 1847, was educated at Rugby and Oxford, and entered the diplomatic service in 1869. He served as attaché at Madrid in 1870,

and became third secretary there in 1873; became a member of the legation at Paris in 1875; was second secretary at Rio de Janeiro in 1877; and in 1880 was a member of George Joachim Goschen's special embassy to Constantinople, where he became second secretary in 1881. After serving as secretary at Pekin (1885), at Copenhagen (1888), and at Lisbon (1890), he became secretary of the embassy at Washington in 1893, and then at St. Petersburg (1894), where he acted as minister plenipotentiary during the absence of the ambassador. He was envoy extraordinary and minister plenipotentiary at Belgrade in 1898-1900, and at Copenhagen in 1900-1905, when he became ambassador to Vienna, where he remained until appointed to Berlin.

GRADES FOR COTTON. See COTTON.

GRADUATE SCHOOL OF AGRICULTURE. See AGRICULTURE.

GRAVES, JOHN TEMPLE. An American journalist, vice-presidential candidate of the Independence Party in 1908. He was born at Abbeville, S. C., on Nov. 9, 1856, and graduated at the University of Georgia in 1875. He was editor of the *Daily Florida Union*, Jacksonville (1881-83); of the *Atlanta Daily Journal* (1887-88); and of the *Tribune of Rome* (1888-90). In 1884 he was elector-at-large on the Florida Democratic ticket, and in 1888 was a successful candidate for the same office in Georgia. He became editor-in-chief of the *Atlanta Daily Georgian* in 1905 and since 1907 has been the editor of the *New York American*. In July, 1908, he was nominated for vice-president by the Independence Party. Mr. Graves is widely known as a public speaker, and is the author of *History of Florida of To-Day*; *History of Colleton, S. C.*; and *Twelve Standard Lectures*.

GREAT BRITAIN. The area and population of the United Kingdom of Great Britain and Ireland in 1901 and 1908 were as follows, by subdivisions:

	Area, sq. Miles	Total, 1901	Estimated total, 1908
England and Wales....	58,324	32,527,843	35,348,780
Scotland	30,405	4,472,103	4,826,587
Ireland	32,360	4,468,775	4,826,587
Isle of Man	227	54,752	.....
Channel Islands	75	95,718	.....
Army, navy, and merchant seamen abroad		367,736	.....
Total	121,391	41,976,927	44,538,718

In 1901 the population to the square mile in England was 436.7; in Wales, 195.5; in Scotland, 150.1; in Ireland, 136.7. The percentage of the population living in the various divisions of the United Kingdom in 1901 was as follows: England, 74.1; Wales, 4.1; Scotland, 10.8; Ireland, 10.7. The percentage of the population living in Ireland decreased from 23.7, in 1851, while that of England increased from 61.0 in 1851.

The births, deaths, and marriages in 1907 were as follows:

	Births		Deaths		Marriages	
	Number	Rate per 1000 of population	Number	Rate per 1000 of population	Number	Rate per 1000 of population
England and Wales	917,636	26.3	524,311	15.0	276,031	15.8
Scotland	128,789	27.0	77,267	16.2	33,260	13.9
Ireland	101,563	23.3	77,410	17.7	22,122	10.1
United Kingdom	1,147,988	26.0	678,988	15.4	331,413	15.0

The number of emigrants in 1907 was the highest yet recorded. Taking the passengers to and from non-European countries, those outward bound numbered 634,949, while those inward bound numbered 293,633, giving a balance of 341,316 out-going passengers. This figure roughly represents the number of actual emigrants. The number of British and Irish emigrants was 235,092, and of foreign emigrants, 109,857. Of the former, 131,433 sailed for other parts of the British empire, 117,525 going to Canada alone, while the number going to foreign countries was 103,659 (99,944 to the United States). As regards passengers to and from European countries, there was a balance inward of 113,385, the incoming passengers numbering 949,379, and the outgoing passengers, 835,994.

The estimated population of the principal cities in England and Wales in 1907 was: London, 4,758,218 (Greater London, 7,217,941); Liverpool, 746,144; Manchester, 643,148; Birmingham, 553,155; Sheffield, 455,453; Bristol, 367,979; Bradford, 290,323; West Ham, 308,284; Hull, 266,762; Nottingham, 257,489; Salford, 276,670; Newcastle on Tyne, 272,669; Leicester, 236,124; and in Scotland: Glasgow, 847,584; Edinburgh, 345,747; Aberdeen, 174,579; Dundee, 165,748. The population of Dublin and Belfast, Ireland, in 1901, was 296,638 and 349,180 respectively.

PUBLIC EDUCATION. Elementary education is compulsory in England and Scotland for the age period from 5 to 14, but total or partial exemption may be secured at the age of 11 in England and of 12 in Scotland. The proportion of persons who were unable to write their names on the marriage register in England and Wales in 1905 was 1.6 per cent. for males and 2.0 per cent. for females; in Scotland, in 1905, 2.17 per cent. for males and 1.61 per cent. for females; and in Ireland, in 1906, 8.6 per cent. for males and 6.2 per cent. for females.

The central educational authority for England and Wales is the Board of Education, created in 1899. A Welsh department of the Board was established in 1907. The code drawn up by the Welsh department provides for the teaching of the Welsh language and literature, and allows any of the subjects of the curriculum to be taught in Welsh. In 1906, local education authorities were given the power to provide meals for children attending public schools. In 1908 the Consultative Committee of the Board of Education recommended the establishment of nursery schools for children between the ages of three and five. In 1907 there were in England and Wales 20,907 ordinary elementary schools (7,230 "Council," or public, and 13,671 "voluntary," or sectarian), with an enrollment of 5,509,456, and an average attendance of 88.43 per cent. Secondary schools in receipt of government aid numbered 768 in 1907, with 116,678

pupils. Evening schools in receipt of aid numbered 5,728 in 1906, with 749,473 pupils. In Scotland, with an Education Department of its own, there were, in 1907, 3,285 elementary and higher grade schools in receipt of aid, with 811,000 registered pupils and an average attendance of 711,228. There were also 772 continuation classes, with 107,622 pupils. Secondary schools under inspection numbered 109. In Ireland, elementary education is under the control of Commissioners of National Education, under whom there were, in 1907, 8,538 elementary schools, with an enrollment of 732,460 pupils, and an average attendance of 485,979. There were 5,951 schools attended exclusively by pupils of one denomination, namely, 4,389 schools with 366,473 Roman Catholic pupils, and 1,562 schools with 116,331 Protestant pupils. The funds for the maintenance of primary and secondary education are derived partly from Parliamentary grants and partly from local rates, endowments, subscriptions, etc.

Besides the old universities of Oxford and Cambridge, there are now universities at London, Durham, Manchester, Leeds, Liverpool, Sheffield, and Birmingham; the University of Wales; the universities of St. Andrews, Aberdeen, Glasgow, and Edinburgh; and Dublin University. In 1908 a joint committee, consisting of representatives of labor and representatives of the University of Oxford, proposed a plan whereby workmen may be enabled to enter Oxford and study there for a period of at least two years, not as candidates for the regular degrees, but as aspirants to a diploma which the university may grant for proficiency in certain branches of knowledge. The establishment of a Catholic teaching and degree-conferring university for Ireland was decided upon in 1908. See below, *History*.

FISHERIES. The total value of the fish landed on the coasts of the United Kingdom in 1908 was £10,897,841, against £11,686,674 in 1907. The following table distinguishes the coasts on which they were landed:

	Quantity Cwts.	Value
England and Wales—		
Fish, excluding shell fish	13,270,406	£7,739,334
Shell fish .....	.....	293,650
Total value .....	.....	£8,032,984
Scotland—		
Fish, excluding shell fish	8,629,968	£2,511,492
Shell fish .....	.....	74,239
Total value .....	.....	£2,585,731
Ireland—		
Fish, excluding shell fish	687,162	£261,605
Shell fish .....	.....	17,521
Total value .....	.....	£279,126

AGRICULTURE. The following table shows the acreage of crops and number of live stock in Great Britain, Ireland, and the United Kingdom, in 1907:

	Great Britain	Ireland	United Kingdom (Incl. Isle of Man and Channel Is.)
Cultivated Area.....	Acres. 32,243,447	Acres. 14,629,593	Acres. 46,997,546
Wheat	1,625,445	38,143	1,665,017
Barley	1,712,094	170,431	1,885,359
Oats	3,122,898	1,075,390	4,218,541
Rye	61,211	8,868	70,204
Beans	309,730	1,835	311,684
Peas	166,136	324	166,608
Green crops	3,088,153	1,002,980	4,114,535
Flax	372	59,659	60,031
Hops	44,938	.....	44,938
Small fruit	82,175	11,449	94,175
Bare fallow	261,450	.....	261,717
Clover, sainfoin, etc.	4,490,961	2,155,662	6,693,017
Permanent pasture	17,277,884	10,104,852	27,411,720
Orchards	250,176	306,661	.....
Live stock—			
Horses (in agriculture)	1,556,369	523,102	2,089,027
Cattle	6,912,067	4,676,493	11,630,142
Sheep	26,115,455	3,816,609	30,011,833
Pigs	2,636,766	1,317,068	3,967,163

The acreage under permanent pasture is exclusive of heath or mountain land. Woods, coppices, and plantations occupied in Great Britain, in 1905, 2,768,243 acres; in Ireland, in 1907, 306,661 acres. The estimated total produce of the principal crops in Great Britain, Ireland, and the United Kingdom, in 1907, is shown in the following table:

	Great Britain	Ireland	United Kingdom (Incl. Isle of Man and Channel Is.)
Wheat	Bushels. 55,206,195	Bushels. 1,325,003	Bushels. 56,531,198
Barley	60,370,180	6,722,141	67,092,321
Oats	134,392,119	49,296,631	183,688,750
Beans	10,629,041	82,512	10,711,553
Peas	4,736,616	9,141	4,745,757
Potatoes	Tons 2,977,485	Tons 2,246,488	Tons 5,223,973
Turnips and swedes	22,085,718	4,095,710	26,181,428
Mangold	8,936,922	1,181,551	10,118,473
Hay	10,429,234	5,173,946	15,603,180
Hops	Cwts. 374,129	.....	Cwts. 374,129

Preliminary returns of some of the crops of Great Britain in 1908 were as follows: Potatoes, 3,919,768 tons; turnips and swedes, 23,738,207 tons; mangold, 8,987,161 tons; hay, 7,181,391 tons; wheat, 54,178,000 bushels; barley, 56,437,000 bushels; oats, 127,641,000 bushels; beans, 9,122,000 bushels; peas, 4,494,000 bushels.

MINING AND METALS. The total number of persons employed in the mines and quarries of

the United Kingdom and the Isle of Man in 1907 was 1,060,034, of whom 972,220 were employed in or about mines, and 87,814 in or about quarries. In 1906, the numbers were, respectively, 1,004,092; 912,576; and 91,516. The number of separate fatal accidents in or about mines and quarries in 1907 was 1,283, causing the loss of 1,368 lives. Compared with 1906 there was an increase of 93 accidents and 93 deaths. In 1908, there were 1,306 killed in accidents in and around mines. Of this number 1,161 were underground fatalities. The value of the total mineral production in 1907 was £135,279,088, against £105,842,992 in 1906. The quantity and value of the principal minerals produced in 1907 were as follows:

	Tons.	Value at mines and quarries
Chalk	4,779,387	£ 200,882
Clay and shale	14,827,895	1,850,387
Coal	267,830,962	120,527,378
Gravel and sand	2,400,392	183,625
Igneous rocks	5,674,470	1,158,951
Iron ore	15,731,604	4,433,418
Lead ore	32,533	419,247
Limestone (other than chalk)	12,509,142	1,323,624
Oil shale	2,690,028	806,323
Salt	1,984,656	648,696
Sandstone	5,012,053	1,397,285
Slate	443,554	1,178,609
Tin ore (dressed)	7,080	706,700
Zinc ore	20,082	100,533

The increase in the total value of the minerals raised in 1907 over that in 1906 is mainly accounted for by the increased output of coal (251,067,628 tons in 1906) and the rise in the average price of coal from 7s. 3.49d. a ton in 1906 to 9s. in 1907. The 1907 output of coal was the highest on record. The quantity of coal exported during the year (exclusive of coke and patent fuel, and of coal shipped for the use of steamers engaged in foreign trade) was 63,600,947 tons, against 55,599,771 tons in 1906. Of the 1907 exports, France received over 10,600,000 tons, Italy over 8,250,000, Germany over 10,000,000, the Netherlands over 3,750,000, Sweden over 3,600,000, and Russia, Spain, Denmark, Egypt, and Argentina each over 2,000,000 tons. Adding the 2,968,501 tons exported in the form of coke and patent fuel, and the 18,618,828 tons shipped for the use of British and foreign steamers engaged in foreign trade, the total quantity of coal which left the country was 85,188,276 tons. Of the 182,642,686 tons remaining in the country, 21,119,547 tons were used during the year in blast furnaces for the manufacture of pig iron, against 20,836,795 in 1906.

The output of iron ore shows an increase of 231,198 tons over that of 1906. The ore yielded 5,126,949 tons of iron, valued at £19,004,413, or more than one-half the total quantity of pig iron made in the country, which amounted to 10,114,281 tons, against 10,109,453 tons in 1906. Other metals produced from British ore in 1907 were: Copper, 666 tons, valued at £62,673; gold, 1,911 ounces, valued at £6,228; lead, 24,460 tons, valued at £479,722; silver from lead, gold, and silver ores, 153,684 ounces, valued at £19,331; tin, 4,407 tons, valued at £769,438; zinc, 7,600 tons, valued at £186,612.

TEXTILE INDUSTRY. For the year ending Aug. 31, 1908, the number of cotton spinning spindles in operation was estimated at 52,817,582, of which 32,197,712 reported short time. The mill consumption of cotton were 3,841,981 bales, of which 3,272,075 bales were American, 76,058 East Indian, 396,135 Egyptian, and 97,713 various. The export of domestic cotton manufactures, including yarn, cloth, and other manufactures, was valued at £110,438,231 in 1907.

The wool clip in 1907 was estimated at 131,000,000 pounds; imported wool at 806,000,000; wool obtained from imported sheep skins, 32,000,000; and wool obtained from imported woolen rags, 113,000,000. The exports of wool comprised 31,000,000 pounds of domestic wool and 314,000,000 pounds of foreign wool re-exported. There was thus retained for home consumption 737,000,000 pounds of wool. The exports of woolen manufactures, including yarn and piece goods, in 1907, were valued at £34,161,000.

The domestic production of flax and tow in 1907 was estimated at 24,000,000 pounds, imports were 232,000,000 pounds, and exports 7,000,000 pounds, so that 249,000,000 pounds were retained for home consumption. The value of the exports of linen and jute manufactures in 1907 (yarn, piece goods, and other manufactures), was £10,023,317. (For the exports of textile manufactures in 1908 see below, *Commerce*).

SHIPBUILDING. Lloyd's Register of British and Foreign Shipping reported that during 1908, exclusive of warships, 523 vessels of 929,669 tons gross (viz., 454 steamers of 914,570 tons and 69 sailing vessels of 15,099 tons) had been launched in the United Kingdom. (See SHIPBUILDING.) The warships launched in both government and private yards amounted to 36 of 74,186 tons displacement. The total output for the year, therefore, was 559 vessels of 1,003,855 tons. The output of mercantile tonnage in the United Kingdom during 1908 showed a decrease of 678,221 tons from that of last year, and was the lowest total recorded by the society for fifteen years. As regards war vessels the total for 1908 was 60,289 tons less than in 1907. Practically the whole of the tonnage launched has been built of steel and over 98½ per cent. is composed of steam tonnage. Of the total output, 60 per cent., of 554,995 tons (547,080 steam tons and 7915 sailing tons) has been built for registration in the United Kingdom. The sailing tonnage of the United Kingdom apparently was decreased by about 75,400 tons, and the steam tonnage increased by 245,000 tons. The net increase of United Kingdom tonnage at the end of 1908 was about 169,600 tons. The amount of tonnage launched for abroad during 1908 was 374,674 tons, forming 40 per cent. of the total output, as compared with 34 per cent. in 1907.

The accompanying table from *Engineering* (London) gives the tonnage built for foreign countries and the British Colonies. Belgium and Holland, as will be seen, figured more prominently than in preceding years; but this was due entirely to the construction of a huge liner for each country, the Holland ship being the largest of the year, while the Belgian ship takes second place. Norway, as well as Sweden, was a leading customer, and the low prices ruling encouraged them to take quite a number of vessels of from 2000 to 3000 tons, built mostly

on the North-East Coast. The same applied to Sweden. Two liners for Italy and some few vessels for France were also favorable features, but Germany, seriously reduced her quota. Greece was fairly active in her demands. The best customers were the Colonies and the South American Republics, as a great variety of river craft were sent to the South American Republics. *Countries where British-Built Foreign-Owned Ships were Registered.*

	1908	1907	1906
	tons	tons	tons
South American Republics	57,832	53,826	49,101
Colonies	51,883	88,221	22,566
Belgium	39,941	4,054	4,996
Holland	33,146	28,991	3,976
Norway	29,137	51,213	44,306
Austria-Hungary ..	20,117	80,697	13,248
Spain	18,044	357	7,793
Sweden	17,816	20,856	23,769
Italy	17,807	60,200	6,839
France	16,710	19,665	18,069
Germany	16,623	35,274	104,526
Greece	9,272	3,487	8,025
Portugal	4,030	1,694	6,670
United States	2,943	.....	.....
Russia	2,600	3,725	20,527
Japan	1,150	9,822	1,974
Egypt	462	3,828	.....
Slam	436	.....	.....
Persia	330	.....	.....
China	280	130	130

British Shipbuilding by Districts.

The British shipbuilding during the year taken by districts as reported by *Engineering*, London, was as follows for the calendar years:

District.	Total Production	
	1908	1907
	No.	tons
<i>Scotland</i>		
Clyde (including outports).....	532	352,800
Other Scotch ports.....	90	45,000
<i>England.</i>		
Tyne	112	213,000
Wear	40	85,000
Tees	25	59,000
Hartlepool	13	37,000
Barrow-in-Furness (including Workington and Maryport).....	15	15,000
Mersey	68	23,000
Blyth and Whitby.....	8	6,725
Humber (Hull and Grimsby).....	86	20,500
Thames and other English and Welsh ports.....	348	18,200
<i>Ireland.</i>		
Belfast and Londonderry.....	22	158,600

EXCISABLE ARTICLES. The production of spirits in 1907 amounted to 49,019,149 proof gallons; beer, 34,438,373 barrels; glucose, 1,014,224 cwts.; chicory, 1,527 cwts.; saccharine, 206,323 ounces. The exports of British produce in 1907 were: Spirits, 8,657,754 proof gallons; beer, 651,899 barrels; glucose, 38,340 cwts.

FOREIGN COMMERCE. In 1908 the total imports amounted to £593,140,723—a decline of £52,667,219 from 1907, and the total exports, £377,219,579—a decline of £48,815,504 from 1907. The imports of gold bullion and specie in 1908 amounted to £46,145,314; silver, £10,326,889. The exports of gold bullion and specie in 1908 were £49,969,099; silver, £13,283,388, the excess of exports over imports being an unusual condition for Great Britain. The table on page 312 shows the values of imports and exports of merchandise in 1908 by principal classes and groups, and the per cent. increase (+) or decrease (—) of each group as compared with 1907:

IMPORTS AND EXPORTS OF THE UNITED KINGDOM IN 1908.

Classes of Merchandise	Total imports	Per cent. inc. (+) or dec. (—)	Exports of domestic produce	Per cent. inc. (+) or dec. (—)
I. Food, drink, and tobacco—				
Grain and flour	£72,734,817	— 3.5	£3,524,943	+14.1
Meat, including animals for food	49,488,539	— 4.6	.....	.....
Other food and drink—				
1. Non-dutiable	68,587,646	+ 1.6	15,968,213	— 6.4
2. Dutiable	48,247,930	— 0.1	.....	.....
Tobacco, manufactured and unmanufactured..	5,189,176	+23.0	1,398,025	+10.7
Total	£244,248,108	— 1.2	£21,943,251	— 3.4
II. Raw materials and articles mainly unmanufactured—				
Coal, coke, and unmanufactured fuel	£ 4,689	—76.5	£41,615,923	— 1.1
Iron ore, scrap iron and steel	4,977,153	—32.3	413,692	—27.8
Other metallic ores	8,907,960	—12.0	77,573	—59.0
Wood and timber	24,306,059	—10.2	97,592	—12.7
Cotton	55,834,966	—20.7	.....	.....
Wool	30,753,990	—15.6	2,662,600	—16.9
Other textile materials	13,714,721	—23.8	245,470	+ 7.9
Oil-seeds, nuts, oils, fats, and gums	28,513,061	— 7.1	3,090,937	— 9.8
Hides and undressed skins	9,423,304	—12.3	1,424,819	—21.5
Materials for paper making	4,610,892	+ 5.6	543,926	—27.7
Miscellaneous	22,441,949	—13.3	2,214,079	—13.9
Total	£203,488,744	—15.6	£52,386,611	— 4.7
III. Articles wholly or mainly manufactured—				
Iron and steel and manufactures thereof	£7,679,655	+ 6.4	£37,428,413	—19.6
Other metals and manufactures thereof	24,675,449	—14.7	8,860,151	—24.1
Cutlery, hardware, implements, and instruments	3,750,029	— 7.8	5,495,164	—14.5
Telegraph cables and apparatus	1,263,757	+ 1.2	1,924,106	—21.3
Machinery	4,556,762	—14.2	31,018,912	— 2.2
Ships (new)	18,199	—32.6	10,566,990	+ 5.4
Manufactures of wood and timber	1,970,879	+ 2.6	1,256,545	—10.7
Yarns and textile fabrics—				
1. Cotton	9,475,655	— 4.0	95,068,464	—13.9
2. Wool	9,500,020	—11.9	28,389,621	—16.8
3. Other materials	18,939,089	— 8.6	12,415,972	—24.7
Apparel	4,200,793	— 7.5	8,854,865	— 7.3
Chemicals, drugs, dyes, and colors	10,199,567	—12.2	16,238,855	— 4.4
Leather and manufactures thereof (Incl boots and shoes)	11,562,426	+ 7.4	3,832,683	—15.9
Earthenware and glass	3,685,452	— 8.9	3,699,398	— 8.6
Paper	5,799,950	+ 2.2	2,315,631	— 1.2
Miscellaneous	25,846,353	—80.6	29,627,317	—10.3
Total	£143,124,035	— 7.6	£297,061,087	—13.1
Miscellaneous and unclassified	£2,279,836	— 3.3	£5,828,630	— 7.1
Totals	£593,140,723	— 8.1	£377,219,579	—11.4

Following are some further details respecting the imports of foods and raw materials in 1908: Wheat imports were valued at £38,295,940, of which £2,053,788 worth came from Russia, £823,216 from Rumania, £11,450,396 from the United States, £13,112,215 from Argentina, £904,588 from Chile, £1,297,138 from the British East Indies, £2,421,286 from Australia, and £5,911,173 from Canada. Wheat meal and flour

amounted to £7,075,231 (£5,369,406 from the United States; £890,700 from Canada). Barley was valued at £6,113,945 (£2,581,624 from Russia). Oats were valued at £4,162,775 (£1,108,787 from Russia; £1,225,708 from Germany). To the maize import, valued at £10,388,061, Argentina contributed £5,660,599 worth, the United States, £2,015,701, and Russia, £1,526,803. Rice imports were valued at £2,594,896, and living

animals for food at £6,671,810. Fresh beef imports amounted to £10,308,380, of which £6,102,926 came from Argentina, £3,268,584 from the United States, and £541,600 from New Zealand. Fresh mutton came principally from Australia, £1,195,259; New Zealand, £3,452,584; and Argentina, £2,512,656. Bacon came principally from Denmark, £5,685,526; the United States, £6,035,498; and Canada, £2,518,222. Hams came principally from the United States, £2,240,238, and Canada, £835,194. The total imports of meats amounted to £41,763,430. The imports of butter amounted to £24,082,537 (from Sweden, £1,430,769; Denmark, £10,984,722; New Zealand, £1,250,211). To the cheese import, valued at £6,684,203, Canada contributed £4,555,751. Egg imports amounted to £7,183,112. The imports of refined sugar amounted to £12,199,453 (£8,969,695 from Germany), and unrefined sugar, £7,814,788 (£3,994,393 from Germany). To the tea imports, £10,745,588, British India contributed £5,770,094, and Ceylon, £3,588,265. Raw cotton from Egypt amounted to £13,698,676; United States, £39,286,262; British India, £1,414,973; Brazil, £185,130. Wool from Argentina amounted to £1,680,061; British South Africa, £2,892,521; Australia £13,412,254; New Zealand, £5,941,765.

The trade with the principal countries of import and export in 1907 was as follows:

From and to	Total imports	Total exports (inc. colonial and foreign)
Russia	£31,423,088	£19,063,421
Sweden	11,066,767	7,910,939
Norway	6,613,555	4,949,740
Denmark	18,459,924	6,317,439
Germany	38,782,062	56,729,988
Netherlands	36,831,888	19,005,040
Belgium	28,291,426	19,354,022
France	52,832,526	33,507,544
Spain	16,843,186	5,892,082
Italy	3,850,875	15,252,483
Turkey	6,006,524	7,809,627
Egypt	22,225,375	10,231,034
China	3,471,933	12,137,977
Japan	3,241,568	12,279,498
United States	133,683,631	58,052,574
Brazil	9,735,470	10,546,092
Argentina	26,479,724	18,294,492
Chile	6,037,215	7,765,794
Total of foreign countries (including others)	488,670,888	370,523,086
Canada	28,029,461	19,220,973
Australia	33,836,353	27,146,803
New Zealand	17,783,749	9,441,908
British India	43,939,184	53,311,127
Straits Settlements	9,019,532	3,959,206
Cape Colony	16,098,618	10,581,778
Total of British possessions (including others)	157,137,054	147,454,081

The imports into Irish ports in 1907 amounted to £61,617,225, and the exports, £60,521,245, showing an increase over 1906 of £4,005,281 and £3,287,547 respectively.

SHIPPING AND NAVIGATION. The total net tonnage, with cargo and in ballast (foreign trade), entered and cleared at the ports of the United Kingdom in 1907, was 66,240,913 and 67,030,807 respectively. Of that entered, 40,415,618 was British; of that cleared, 40,892,824. The leading foreign flags represented were, in the order of their importance, the German, Norwegian, Danish, Swedish, Dutch, French, and Spanish. The tonnage entered and cleared in the coast traffic, with cargo and in ballast, was 60,600,992 and 59,887,070 respectively, about one-fifteenth being foreign. On Dec. 31, 1907,

there were registered as belonging to the United Kingdom 11,304 steamers, of 10,023,723 net tons, and 9648 sailing vessels, of 1,461,376 net tons, making a total of 21,042 vessels of 11,485,099 net tons (18,089,642 gross tons), against 20,764 vessels of 11,167,332 net tons (17,458,936 gross tons) at the end of 1906.

INTERNAL COMMUNICATIONS. On Dec. 31, 1907, there were in the United Kingdom 23,108 miles of railway open, of which 15,897 were in England and Wales, 3,849 in Scotland, and 3,362 in Ireland. The results of the operations of railways in the United Kingdom during 1907 were as follows: Number of passengers, exclusive of season ticket holders, 1,259,481,000; merchandise carried, including minerals, 515,887,000 tons; total gross receipts, £121,548,923; working expenditure, £76,609,194; net receipts, £44,939,729; proportion of working expenditure to gross receipts, 63 per cent. The paid-up capital of all railways in the United Kingdom, including loans and debenture stock, on Dec. 31, 1907, was £1,294,066,000, and the average rate of dividend or interest during the year was 3.44 per cent.

The length of telegraph line owned by the State on March 31, 1907, was 56,597 miles. The telegraph and telephone receipts in 1906-7 were £4,295,790; expenditures, £4,895,286. The post-office receipts and expenditures in 1906-7 were, respectively, £17,125,817 and £16,583,000.

JOINT-STOCK COMPANIES, BANKS, ETC. In 1907 there were registered in the United Kingdom 5,265 joint-stock companies, with a nominal capital of £137,907,836. The total number of joint-stock companies (including banks) on the register April 30, 1908, was 45,304, with a paid-up capital of £2,123,492,957. At the end of 1907 the postal savings banks of the United Kingdom had 10,692,555 open accounts, the amount due to depositors being £157,500,077, an average of £14 14 s., 7d. to each account, against an average of £15 1s. 11d in 1906. Trustee savings banks in the United Kingdom had, at the end of 1907, 1,782,252 open accounts, the amount due to depositors being £52,153,595, an average of £29 5s. 3d. to each account. The amount cleared at the London bankers' clearing house in 1907 was £12,730,000,000, against £12,711,000,000 in 1906, and £12,288,000,000 in 1905.

FINANCIAL DEPRESSION in 1908. During 1908 there were 10,196 failures, against 9,606 in 1907. Unemployment was widespread, particularly in the engineering, shipbuilding, and building trades. Toward the end of 1907, the number of unemployed skilled workers was estimated by the officials of the General Federation of Trade Unions in Great Britain at 500,000, and of unskilled, at 1,000,000. This number increased during 1908. At the end of November, 1908, 268 trade unions, with a membership of 644,770, reported 58,349, or 9.1 per cent., out of work. This denoted an improvement over the end of October, when the same unions reported 9.5 per cent. unemployed, but compared with 5.0 per cent. at the end of November, 1907. The percentage of indoor and outdoor paupers in England and Wales in March, 1908, was 2.31, against 2.27 per cent. in March, 1907; at the end of June, 1908, it was 2.20, against 2.18, on the same date in 1907; and at the end of November, 1908, it was 2.34, against 2.25 in 1907. The general distress was aggravated by a lockout in the Lancashire cotton mills, lasting over seven weeks and involving 100,000 workers. It

was due to a proposed reduction of wages, and was compromised by postponing the date on which the reduction is to take effect. The mills were reopened on November 9 (See **STRIKES and LOCKOUTS.**)

FINANCE. The revenue (receipts into Exchequer) and expenditure (issues out of Exchequer, exclusive of expenditures not chargeable against revenue) of the United Kingdom for the year ending Mar. 31, 1908, were £156,537,689 and £151,812,094 respectively. The principal divisions of revenue and expenditure were as follows:

Revenue	1907-8
Customs	£32,490,000
Excise	35,720,000
Property and income tax	32,380,000
Estate, succession, etc., duties	19,070,000
Land tax	730,000
House duty	1,980,000
Stamps (exclusive of fee and patent stamps)	7,970,000
Post office	17,880,000
Telegraph service	4,255,000
Crown lands (net receipts)	520,000
Suez Canal dividends	1,189,411
Fee and patent stamps	1,024,000
Miscellaneous	1,184,278
Expenditure	1907-8
National debt servicers	£29,500,000
Civil list	470,000
Annuities, pensions, courts of justice, etc.	1,501,714
Civil Administration	30,180,000
Payments to local taxation accounts	11,155,380
Army	27,115,000
Navy	31,141,000
Charges for collection of revenue	3,222,000
Post office and telegraphs	17,527,000

The budget for 1908-9 estimated the revenue at £154,350,000 and the expenditure at £154,109,000. The total national debt on Mar. 31, 1908, stood at £759,826,051, including permanent debt, £625,608,890; estimated capital of terminable annuities, £39,407,575; unfunded debt, £43,959,400; other capital liabilities, £50,850,186.

ARMY. The military forces were reorganized in 1908, by an Act of Parliament known as the "Territorial and Reserve Forces Act." The British army formerly consisted of the regular army and the "auxiliary forces," which latter included the militia, yeomanry, and volunteers. Under this act the military forces consist of the "regular" and the "territorial" armies. The regular army is recruited by voluntary enlistment, the term of service being 7 years with the colors and 5 years in the reserve, except in the cavalry, where it is 8 years with the colors and 4 with the reserve. The territorial army came into existence by permission of the above named act, at the beginning of the fiscal year 1908-09, and includes the old organizations known as the Volunteers and Yeomanry. Recruitment is by voluntary enlistment of men between 27 and 35 years of age, the term of service being four years, with the privilege of reënlisting up to the age of 40. The militia ceased to exist as such on Jan. 15, 1908, and nearly all of its 124 battalions were incorporated into the regular army as 3d, and, in some cases, 4th battalions of line regiments.

The annual training required is not more than 15 or less than 8 days, the remainder of the training being left to the organizations concerned and carried out in the men's own time, as was previously the case with the volunteers. The territorial army is organized into units

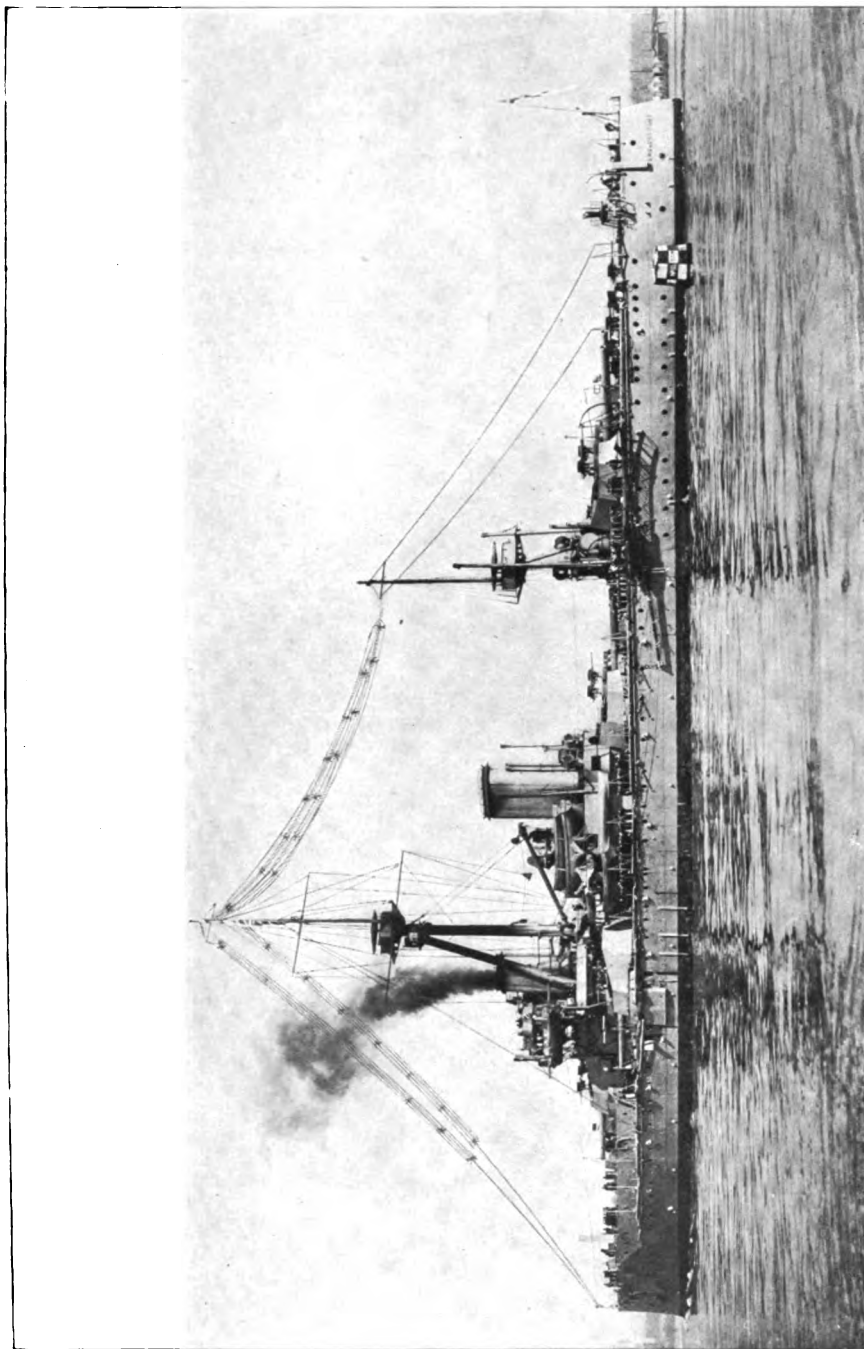
similar to those of the regular army, and the men are paid the regular army rates when called into service. The general officers are responsible to the Army Council for the efficiency of their commands, but the administrative functions are entrusted to "County Associations," which bear the same relation to the territorial army that the War Office does to the regular army. That is, the County Associations are provided by the War Office, with a certain amount of money based on their estimates, and are charged with the raising, maintenance, and equipment of their respective contingents of the territorial army, and the care of reservists and discharged soldiers.

On mobilization the units which are to take the field are brought up to the war strength from the reserves, and at the same time all reserve units are brought up to full strength as a supplementary reserve to supply losses in the field army. The territorial army is also mobilized and is then given a period of six months' training, when it is supposed to be efficient as a home defense army.

In 1907 the regular army numbered 251,373 officers and men, of whom 123,762 were at home and 127,611 were stationed abroad; the army reserve, 128,964; militia, 99,173; yeomanry, 25,543; volunteers, 252,791, making a grand total of 757,864. The distribution of the standing army of the British Empire in 1908-9 was as follows: United Kingdom, 133,189 officers and men; Gibraltar, 3,874; Malta, 7,639; Cyprus, 123; Egypt, 5,787; South Africa, 16,450; Mauritius, 1,418; Sierra Leone, 2,576; Bermudas, 1,330; Jamaica, 1,061; Ceylon, 1,186; Singapore, 2,355; Hongkong, 4,256; North China, 2,001; British India, 234,126 (157,518 natives); not designated, 1,752; giving a grand total of 419,123, exclusive of about 40,000 native troops in the colonies of East and West Africa under the orders of the Secretary for the Colonies. Exclusive of the native Indian army, there are comprised in this total 152,913 infantry, 20,528 cavalry, 30,690 field artillery, 18,674 fortress artillery, 9,684 engineering corps, besides the transport, medical, and other auxiliary corps.

The peace strength of the regular army, exclusive of India, for the fiscal year 1908-9, is 185,000 men, of all grades and classes. The total actual strength of the regular and territorial armies, with their reserves, including regular forces in India, is 739,045 men, about 60,000 less than the authorized strength. The budget carried 27,459,000 pounds sterling for military purposes in 1908-9. The British army in 1908 adopted a new pattern of cavalry sword, a longer bayonet for the rifle, and an improved pack in two parts, so as to limit the weight carried in battle to the necessities of the firing line; and carried on experiments looking to the adoption of motor wagons for transportation service.

NAVY. In 1908 the effective navy stood as follows: 62 first-class battleships, 909,450 tons; 2 second-class battleships, 19,050 tons; 38 armored cruisers, 475,450 tons; 37 protected large cruisers, 208,190 tons; 49 protected small cruisers, 153,340 tons; 8 unprotected small cruisers, 8,610 tons; 24 gunboats, 10,885 tons; 147 destroyers, 64,370 tons; 42 torpedo boats, 7,063 tons; total, 409 ships of 1,928,388 tons, besides 47 submarines. The crews numbered 151,540. The increase in tonnage during 1907 was 112,108. There were in construction 6 battleships, of 123,300 tons, and 5 armored cruisers, of 82,-



From "Cassier's Magazine"

BRITISH BATTLESHIP "DREADNOUGHT"

200 tons. The number of convertible cruisers was 22, ranging from 32,000 to 6,400 tons each.

On Sept. 10 was launched the battleship *St. Vincent*, the fourth of the improved *Dreadnought* type. The launching weight was about 7,000 tons, and the vessel, whose keel was laid on Dec. 30, 1907, was expected to be completed in Dec., 1909. The battleship *Bellerophon* of 18,600 tons, which was launched on July 27, 1907, had its steam and gun trials toward the end of the year 1908 and was commissioned in December of that year.

The year was one of considerable activity and progress in the British navy. The battleship practice was not as good as had been expected, but a number of important improvements and innovations were in progress of development or consideration. Combined manœuvres were carried on between opposing fleets, but not under one command. There were periodical exercises in attack and defense of naval bases at Portsmouth, Portland, Plymouth, and Sheerness; and frequent exercises in the tactics of approach and deployment into line of battle. The internal combustion engine, with its many advantages for warships, received considerable attention, and the *Rattler*, an obsolete gunboat, was equipped with a vertical, 5-cylinder, single acting, suction gas engine and a producer of 500 B.H.P. Gun mountings to the number of 127, of types, Mark II, III, IV, V, and VI, were being strengthened on a considerable number of the older battleships in order that both 5-inch guns and a turret could be fired together. Improvements were also made in the gun sights, range finders, and fire control instruments, while more and stronger searchlights were being installed on account of the increased range of the torpedoes. Guns of greater power were also being developed and 12-inch 50-calibre guns were to be mounted on the newest battleships. Tripod masts were considered doomed in the British navy, and the *St. Vincent* was to have only a light signal mast. Refrigerating plants were being installed in all the new battleships to keep the magazines at a uniform low temperature, while oil fuel was being used as an adjunct to coal.

Naval matters aroused unusual interest and discussion in 1908, and it was asserted by many that Great Britain feared that the German fleet was to be used against her. Some English critics even went so far as to assert that Germany had a well matured plan of invasion; that the invasion would come as a "bolt from the blue" in time of peace; that the German foreign office already had an official note to the Powers ready, defending the necessity of such an attack; that the favorite toast of German naval officers afloat is "The Day." Numerous articles have been written, and speeches made, in England, on the possibility of invasion. Criticisms of the building policy of the British Admiralty compelled the Prime Minister, Mr. Asquith, to define the "Two Power Standard" as: "A fleet of capital ships equal to a combination of the next two most powerful foreign fleets, with an additional margin of 10 per cent. as a factor of safety." A certain school of critics insisted that Great Britain was falling below the two power standard. One well known writer refused to consider any ships but those of the *Dreadnought* type; and insisted that seven capital ships must be laid down immediately. Sir

William White, for many years Director of British Naval Construction, showed very clearly, however, that these hysterical outbursts were without foundation; that England was much stronger than the two power standard; and that there was no danger of her losing this position in the next few years. The German Chancellor, Prince von Bülow (see GERMANY, section on *History*), attempted to allay the fears of Great Britain with the assurance that the German navy is not being built for aggression; that it is solely for coast defense, and the protection of commerce. He stated on Dec. 10th, 1908, that Germany would not embark on any fresh naval proposals. But England could not forget the words of the German Emperor: "The future of Germany lies on the sea"; or his telegram to the Russian Emperor, directed: "From the Admiral of the Atlantic to the Admiral of the Pacific"; or his statement, in a now famous interview, that his country is "unfriendly" to England. England's treaty with Japan permitted her to withdraw all her battleships from the Far East, and concentrate them at home, except four in the Mediterranean. See *Foreign Affairs; Government*.

Dover was completed as a great naval base; and Rosyth, on the Firth of Forth, was being developed.

GOVERNMENT. King Edward VII., born Nov. 9, 1841, ascended the throne Jan. 22, 1901. At the end of 1908 the Cabinet consisted of the following members: Prime Minister and First Lord of the Treasury, Herbert M. Asquith, assumed office April 5, 1908, in succession to Sir Henry Campbell-Bannerman, resigned; Lord High Chancellor, Lord Loveburn; Lord President of the Council, Viscount Wolverhampton; Lord Privy Seal, Earl of Crewe; First Lord of the Admiralty, Reginald McKenna; Secretary of State for Home Affairs, Herbert J. Gladstone; Secretary of State for Foreign Affairs, Sir Edward Grey; Secretary of State for the Colonies, Earl of Crewe; Secretary of State for War, Richard Burdon Haldane; Secretary of State for India, Viscount Morley of Blackburn; Chancellor of the Exchequer, David Lloyd George; Secretary for Scotland, John Sinclair; Chief Secretary to the Lord Lieutenant of Ireland, Augustine Birrel; Postmaster-General, Sydney Buxton; President of the Board of Trade, Winston Spencer Churchill; President of the Local Government Board, John Burns; President of the Board of Agriculture and Fisheries, Earl Carrington; President of the Board of Education, Walter Runciman; Chancellor of the Duchy of Lancaster, Lord Fitzmaurice; First Commissioner of Works, Lewis Vernon Harcourt.

HISTORY.

SPEECH FROM THE THRONE. Parliament was opened on Jan. 29. The speech from the throne referred to the peaceful relations with foreign nations and to the course of international affairs during the year. As to the issues that were still pending, it declared that the relations between Mussulmans and Christians in Macedonia had not improved, and that the Powers had agreed to present a scheme to the Turkish government for the improvement of the Macedonian judiciary; that it was to be hoped that the negotiations between the Belgian government and the Crown over the Congo Free State would result in according to the Free State a humane administration; and that negotiations

were taking place with the United States for reference to the Court of Arbitration at The Hague of the international fisheries question. As to domestic affairs, bills were promised on the following subjects: Old Age Pensions; amendment of the Licensing Law in England and Wales; amendment of the Elementary Education Law in England and Wales; regulation of underground labor in coal mines; amendment of the acts dealing with the housing of the working classes, and regulation of the laying out of land in growing urban centres; amendment of the existing system of property valuation in England and Wales for the assessment of government charges; improvement and extension of University education in Ireland; amendment of the Irish Land Purchase Act of 1903; establishment of authority for control over and improvement of the port and waterway of London; amendment and consolidation of the law for the protection of children and the treatment of juvenile offenders; and the re-introduction of the bills relating to Scottish land and valuation.

MINISTERIAL CHANGES. Sir Henry Campbell-Bannerman, who had been Prime Minister since 1905, resigned on April 5, 1908, on account of long-continued illness and was succeeded by Mr. Asquith, whose reorganization of the Ministry consisted chiefly in the promotion of younger men to important places in the Cabinet. Mr. Lloyd-George succeeded him as Chancellor of the Exchequer; Mr. Reginald McKenna became First Lord of the Admiralty; Mr. Winston Churchill, President of the Board of Trade; and Mr. Walter Runciman, President of the Board of Education. All these were young men who had distinguished themselves in their former positions. The other chief members of the reconstituted Ministry were as noted above under *Government*. The resignation and subsequent death of Sir Henry Campbell-Bannerman (q. v.) left Mr. Asquith the leader of the Liberal Party. His talents were of a different order from those of his predecessor. He lacked Sir Henry Campbell-Bannerman's ingratiating personality, and did not approach him in popularity but on the other hand was remarkable as a keen and effective debater and party fighter. Of the measures mentioned in the speech from the throne, the three which absorbed the main attention of the new government during the year were the Old Age Pension Bill, the Education Bill, and the Licensing Bill. In spite of the vigorous fight which the new Ministry made for them, only one of these measures was carried during the year, namely, the Old Age Pension Bill. But since the other bills consumed the greater share of attention both in and out of Parliament, it is desirable to discuss them in some detail.

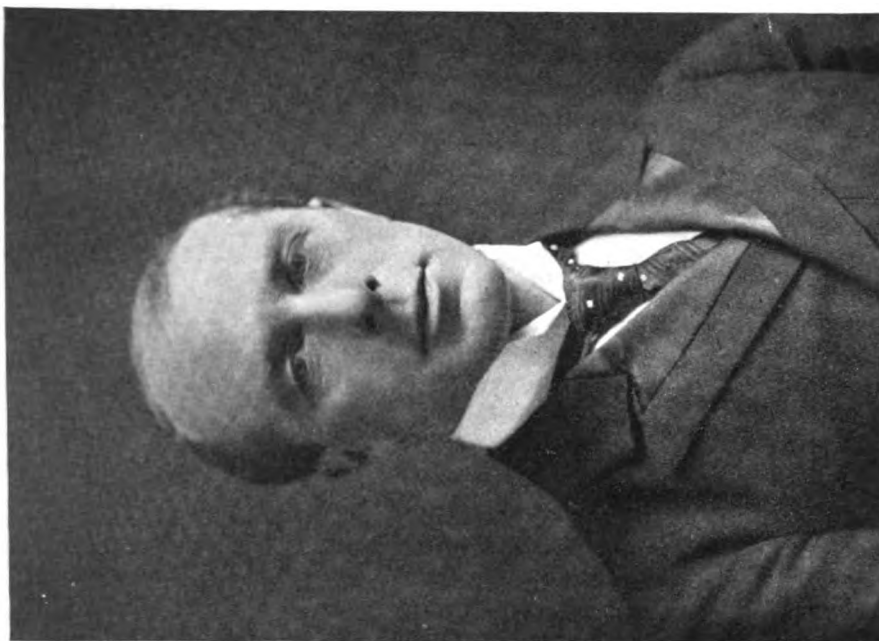
OLD AGE PENSIONS. For several years a proposal for old age pensions had been under discussion, and both parties were committed to a measure of some kind on this subject. It owed its place as an issue in practical politics to Mr. Joseph Chamberlain, who, however, at first favored the German model, which required the recipient to contribute. Strong arguments were brought against this feature of compulsory contribution. It was urged, for example, that owing to the low wages of a large class of workingmen, many of those who were most in need of pensions would be excluded, and that the more independent spirit of the British working-

man would make the application of such a rule more difficult than in Germany. Charles Booth favored the non-contributory plan and Mr. Chamberlain was finally won over to it. There had been much discussion of the subject during the Conservative Ministry, 1895-1906, but nothing practical had come of it, although many of the Conservatives were in favor of an old age pension scheme. In 1907 Mr. Asquith announced that in the following year a scheme would be submitted. This was the first definite promise on the subject, and it was renewed in the speech from the throne. The Old Age Pension Bill was introduced by Mr. Lloyd-George toward the end of May. There was no effective opposition to it, and it passed both Houses and received the royal assent Aug. 1. For the provision of the bill, see **OLD AGE PENSIONS**. The measure aroused great apprehension lest the requisite funds could not be found, and it was urged against it that no backward step could be taken, and that the burden would constantly increase. As a matter of fact, the Labor party subsequently declared in favor of reducing the pension age to 65 years. It was also condemned in many quarters as establishing a dangerous principle that would tend to make people depend too much on the state and, in the end, pauperize the community. Many clung to their belief in the contributory system, arguing that without that feature thrift would be discouraged and the number of idle persons increase. To this it was replied that few of these idlers would reach the age of 70, an age which was seldom attained by any but the sober and industrious among the working classes, and that instead of discouraging thrift, it would rather encourage it by taking away the hopelessness of labor, the tendency to view the workhouse as the necessary end in any event. The proposal for compulsory contribution was voted down in Parliament by a majority of 417 to 29. It was the most extensive experiment in this field that had yet been made among Western nations. The Liberal party, in justifying the introduction of the bill at this time, pointed to the satisfactory condition of the finances which had resulted from their administration. During his first two years as Chancellor of the Exchequer, Mr. Asquith had striven to restore the national credit, which was burdened by the South African war loans, and especially to reduce the national debt. He estimated that by the close of the year £40,000,000 of the debt would have been paid off, and the interest reduced by £1,250,000. He had put an end to the practice of meeting the expenses of the army and navy out of loans; had reduced the army and navy costs; removed the duty on coal, as well as some other slight duties; and rendered the income tax more popular by discriminating between the earnings of labor and those of capital, that is to say, diminishing by one-fourth the rate on the earnings of labor. The Liberals pointed to the fact that the credit had improved and at the same time the return from taxation had increased. From the income tax the returns had exceeded the budget estimates by £1,800,000, which looked for a loss as the result of reducing the rate of the income tax on wage earnings. This year £1,200,000 could be applied to old age pensions. As the law did not become effective until January 1, 1909, the government would not have to provide in that budget for a complete year of pensions.



Courtesy of "Review of Reviews"

RT. HONORABLE DAVID LLOYD-GEORGE
CHANCELLOR OF THE EXCHEQUER



Courtesy of "Current Literature"

RT. HONORABLE REGINALD MCKENNA
FIRST LORD OF THE ADMIRALTY

EDUCATION BILL. During 1907, Mr. Reginald McKenna, then President of the Board of Education, did his best to administer the law in the spirit of the rejected education bill of 1906, modifying, for example, the rules in regard to subventions to normal schools under Anglican control, and preventing pupil teachers from being subjected to religious tests. On Mar. 24, after a speech by Mr. McKenna and a debate, the new education bill was read for the first time. The arguments for it and the explanation of its main provisions may be briefly summarized as follows: The measure was not a duplicate of the 1906 bill which had been killed in the House of Lords. The main problem was how to establish firmly the principle of public control of public elementary schools without religious test for teachers and at the same time do justice to existing institutions with their diverse traditions, hopes, and beliefs.

The new bill provided that there should be only one type of public elementary school controlled by the government and without any religious test for teachers. Each public elementary school should be a County Council school and there should be no compulsory attendance on any other kind of school; religious instruction to be the same as it had been in the Board and County schools for the past 38 years. Although the Liberal argument for the complete secularization was probable, Mr. McKenna pointed out that it did not meet the wishes of the public, for parents desired religious instruction for their children and were opposed to a purely secular system. Moreover, many wished more definite denominational teaching than was given in the county schools. Hence it would be regarded as an injustice if the government did not recognize voluntary schools. It was felt that generous treatment might properly be accorded to these schools, attendance upon them not being compulsory. Therefore the government recognized the voluntary schools. But if they were to receive public grants they must conform precisely to the educational standard of the county schools; the average attendance must be not less than 30; no rate aid should be given to them; and they should not be recognized in single school parishes. The new bill would bestow on each educational area 4s. per child more than at present and it was estimated that the additional benefits would cost the government £1,400,000. The cost would be 47s. per child in both public and voluntary schools. No educational area should receive more than 75 per cent. of the whole cost of elementary education. Provision was made for the transfer of voluntary school buildings which the trustees would not maintain. If "tight trust" rural schools continued, it must be out of private resources. If the school was taken over, the local educational authority was to carry on the educational part of the trust by giving elementary education five days in the week and the denominational part of the trust might be carried on independently on Saturdays and Sundays and out of hours on other days. The local authorities were to keep up the school buildings, supply the heating, lighting, furniture, etc. Cowper-Temple teaching might be made a condition of transfer. The provision as to denominational teaching out of hours should apply only to single school districts, because in

others such teaching could be given in the voluntary schools.

The bill was read a second time on May 20, but it was evident to the government that it could not be passed in its present form and negotiations were undertaken with the church authorities to arrange a measure that would serve as a compromise. After the rejection by the House of Lords of the Education Bill of 1906, owing to the opposition of the Anglican Church to that measure, the Episcopate showed a willingness to admit a compromise, feeling that concessions would be required sooner or later, and that it was better to make them with a good grace than under compulsion. The Archbishop of Canterbury said that he felt bound to admit, though with reluctance, that religious tests for teachers were indefensible. The latter point, however, was sharply debated, for many of the clergy refused to release teachers from all religious requirements. The reformers contended that as teachers were paid out of the public funds, they should no more be subjected to this test than any other civil servants. The Bishop of St. Asaph brought in a bill which agreed with Mr. McKenna's measure in guaranteeing local control and suppressing religious tests for teachers. During the summer, while Mr. Runciman was preparing the compromise measure, discussion lapsed.

On Nov. 19, Mr. Asquith announced that as a result of these negotiations, the government would introduce a new measure which, although it did not contain all the objects desired, would, he believed, offer a solution which all parties concerned could accept. The main provisions of the new bill were as follows: The two essential points of the previous measure were retained, namely, that only the schools provided by the local educational authorities should receive rate aid and that no religious tests should be imposed upon teachers. Religious instruction should be provided by the authorities within the first three quarters of an hour of each school day for children whose parents desired it, but the authorities are to bear no part of the cost. Free accommodation must be provided by the authorities for all children whose parents required it. Attendance was not to be compulsory at any school not provided by the local authorities. Any person approved by the parent may give this denominational instruction and any teacher may do so with the consent of the authority. No grant shall be made to a non-provided school in any single-school district, or unless it has an attendance of at least thirty pupils. It is moreover required to attain the same standard of efficiency as the non-provided schools. Voluntary schools may be transferred to the legal authorities by agreement, provided their use suffices for the purpose of public elementary schools. If the owners of the voluntary schools cannot or will not carry them on as certified efficient schools, the Board of Education may order their transfer to the local educational authorities.

DISCUSSION AND FATE OF THE MEASURE. In the course of the prolonged discussion of this measure, its opponents argued that it was in no sense a compromise, because it did not settle the question; that the Church of England could not approve it, and that all Roman Catholics were opposed to it; that the transfer of the Anglican schools would arouse bitter feeling,

over £1,000,000 having been subscribed to them since 1902; that "contracting out" would cause difficulties—the Parliamentary grants to denominational schools for "contracting out" not sufficing to place them on the same footing with others; that there was no prospect of securing by these means the peaceful solution at which the government aimed. On the other hand it was said that if the Act of 1870, which was a compromise, had kept the peace for twenty years, there was reason to think that the present measure would bring about a like result. There had been ten years of educational warfare, and now a measure was proposed to which the parties concerned would probably agree. "Contracting out" was already practised in Scotland, and was recognized by the Catholics. The Scottish grant per Catholic child was only fourteen shillings, whereas the English grant according to the present bill would be fifty shillings. As to the Non-conformist interest, the government pointed to the fact that the bill provided for complete public control and for untested teachers when rate aid was given, and for the complete rejection of rate aid for sectarian teaching. As to the Anglican Church, the government pointed to the right to give dogmatic teaching in provided schools, and to the fact that in single school districts the Church could establish her own schools with liberal state aid. Further negotiations were carried on between the Ministry and the Anglican Church authorities, in order to reach an agreement but on Dec. 7, the bill was withdrawn, Mr. Asquith announcing that agreement on its features had not been attained. The principal point of disagreement with the Archbishop of Canterbury was the question of "contracting out," and the Prime Minister declared that there was no prospect of an understanding on that point at present. The government could not consent to increase the financial provision, as that would add greatly to the number of schools which would take advantage of the "contracting out" clause.

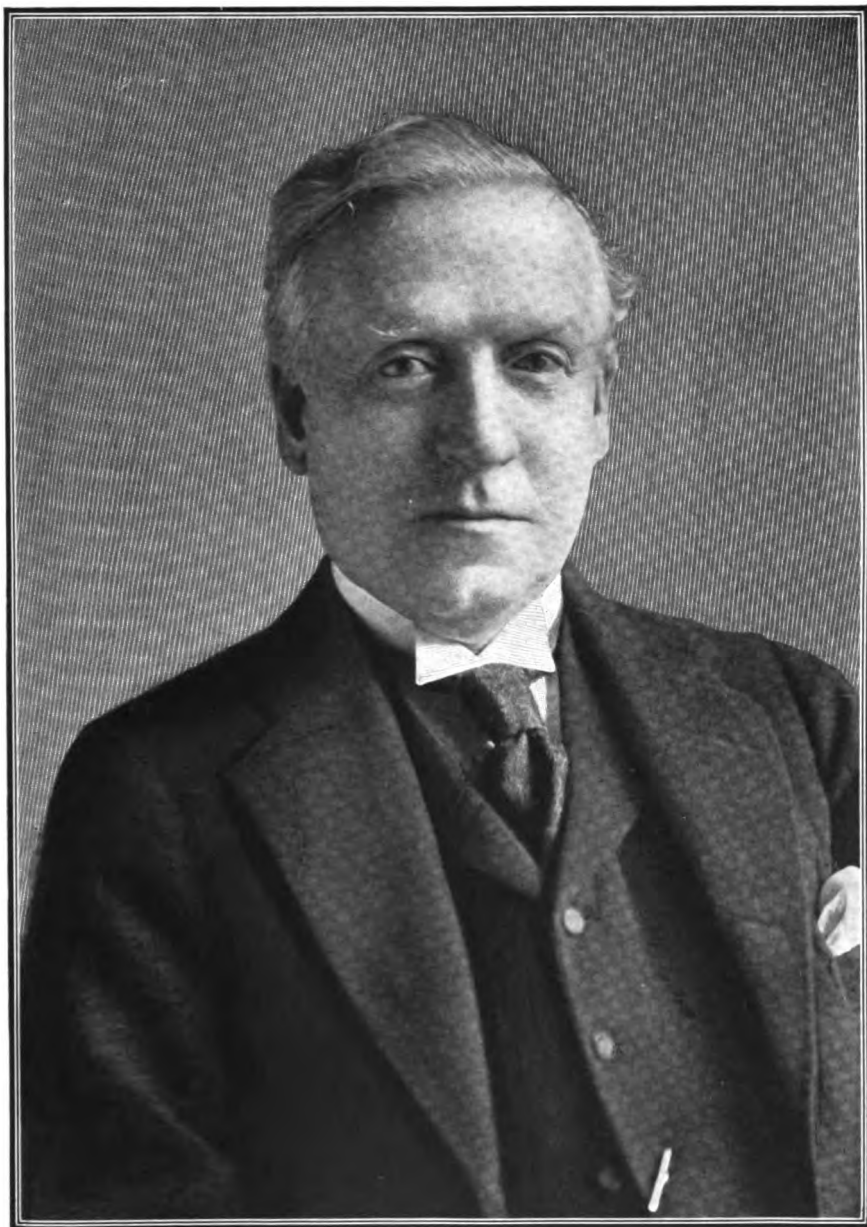
Meanwhile the Church Council which had recently assembled had decided that the bill could not be accepted without serious amendment. Mr. Balfour criticised the government for not having first made sure that the Church would accept their proposal. The government, he said, knew that it was a compromise, and that it did not satisfy the ideals of the Liberals. It should have obtained the agreement of the Bishops at every stage in the framing of the measure. On the other hand it was rushed through the House by the aid of closure. The government had called the financial parts of the bill mere details, whereas the Church regarded them as vital to any settlement of the question, the Archbishop having repeatedly pointed out that the financial proposals as to "contracting out" and as to the transfer of schools were not details that could be left to subsequent agreement, but were of the very essence of the problem to be solved. This was the fourth failure of the government to settle the educational question, and much disappointment was felt, for there had been during the year signs of a conciliatory spirit. Mr. Runciman was commended for his zeal and open-mindedness. When the fate of the measure was still in doubt, a Settlement Committee was formed, in order to rally public opinion in favor of a compromise; and at the time of its

withdrawal there was evidence in the country of a willingness on the part of the opposing interests to concede something for the sake of a solution. Though the failure of the measure was regarded as a signal defeat of the Liberal party, it was felt that certain points which must form parts of any future settlement had been clearly established, namely: That the Anglican Church should have the right of entry into schools and that there should be complete local control, and no religious tests for teachers.

THE LICENSING BILL. Another measure to which the Liberal Party was committed was the amendment of the existing licensing law. The new measure was introduced at the close of February. Its two chief objects were explained by Mr. Asquith at that time (Feb. 27) as the "immediate and progressive reduction of the excessive facilities now given for the retail sale of intoxicating liquor, and the gradual and complete recovery by the State of its dominion over a monopoly which it had imprudently permitted to slide out of its control." It provided for compulsory reduction of licenses within a period of fourteen years, upon a uniform scale based on the ratio between licenses and population. Thus where the density of population was two persons per acre, licenses were not to exceed one for 400 persons; between 2 and 25 per acre, the maximum was one license for 500; between 25 and 50 per acre, one for 600; between 50 and 75 per acre, one for 700; for more than 200 per acre, the maximum was one for 1,000. Exceptions were made of hotels, railway stations, business quarters of great towns, etc.

It was estimated that from 30,000 to 32,000 licenses would be suppressed, a little more than one-third of the total number. There was to be compensation for withdrawal of licenses, but it was to come from a tax levied on the trade. At the end of the reduction period of fourteen years, the licenses in excess of the limits above mentioned should cease altogether; but as a concession to the temperance cause, power was given to the local authorities to reduce them further if they desired. At the expiration of the reduction period, no further indemnity was to be paid. During this period there was to be a licensing commission of three persons, to be paid out of the compensation fund. The Justices were to be retained as licensing authorities, except in large boroughs where there were committees and authorities of special appeal. The parochial electors were to have the right to prohibit the granting of new licenses. The licensing authority must at an early date prepare a scheme for reduction, and when this is approved by the central authorities must select the licenses for extinction.

Other features of the licensing bill were: Annual registration of clubs; right of inspection of clubs on the part of the superior police officers, but not in uniform; metropolitan public houses to be opened only one hour in the middle of the day on Sundays, and only two hours in the evening; regulations as to the exclusion of children, the employment of women, etc. According to the existing system, which this measure was to modify and in part supersede, licenses are issued at the discretion of the local authorities, who sometimes go to one extreme and sometimes to the other, but on the whole have permitted, according to



Courtesy of the "Review of Reviews"

RT. HONORABLE HERBERT H. ASQUITH
PRIME MINISTER AND FIRST LORD OF THE TREASURY

prevailing opinion, the opening of an excessive number of drinking places. For some years past the temperance movement has been growing rapidly, and even among the classes whose views are not at all extreme a material reduction of licenses has been demanded. The local authorities long since perceived this, and they themselves in response to public feeling took measures to reduce the number of licenses. The principle of compensation has never been recognized by law. The local authorities might recall licenses arbitrarily and without indemnity. Down to 1904 the local justices who were the licensing authorities could revoke licenses without indemnity.

During the last ten years the liquor trade in great Britain has greatly altered. The earnings of the breweries have been enormous, and there has been fierce competition among them. In order to assure the sale of their beers, the breweries have followed the policy of buying up all the available licenses and turning them over to the retail dealers, who were bound to their respective interests and must sell their beers. Owing to the sharp competition, these licenses were purchased at an exorbitant price. By the year 1900 the brewers had acquired a large number of the retail shops, which they had purchased at prices far in excess of their actual value; although during this same period the temperance movement was gathering strength and the local authorities were manifesting a tendency to reduce licenses, and although no indemnity was granted for withdrawals. In these circumstances the brewers naturally pressed for compensation in case of the revoking of licenses, and they partially realized their aim in the act of 1904, which was passed by the Balfour ministry. This forbade the recall of a licenses without indemnity, but the indemnity was to be supplied by a tax on the surviving members of the trade, that is, on those retailers whose licenses were not withdrawn. The main objection against this law was that it did not permit a sufficiently rapid reduction; because, owing to the limited supply of money from this source, only a small number of licenses could be recalled. It was opposed by the Liberals and by moderate reformers like the Archbishop of Canterbury and many of the Bishops. For some time past the Liberal Party had been expected to submit a scheme of license reform.

The main subject of contention in the new measure above outlined was the reduction period of fourteen years. The dealers declared that the state was robbing them of their reasonable expectation of profits, and this view was taken generally by the Opposition, who moreover asserted that it would not reduce intemperance materially and had no advantages which could offset the confiscatory feature. The brewing interests were naturally solid against it. A vast number of investors were concerned, and a large decline in the shares of breweries took place. The matter was violently discussed in Parliament and in the press. Thousands of electioneering rooms were opened and canvassers were sent out by the breweries. Mr. Balfour condemned the bill as a measure of confiscation and as tending to promote secret drinking in clubs. It was remarked by a leading English newspaper that if it became a law the incomes of many peers would be cut in two. A great many of the brewing companies

were in bad financial condition, their shares having greatly declined owing to the excessive purchase of licenses at high prices; and it was urged that to oblige them to liquidate within the reduction period would mean their ruin. A large amount of money was spent in the campaign against the measure. On the other hand, not only the temperance reformers but more moderate assailants of the drinking evil were active on its behalf. As to the charge that it was a confiscatory measure, the government pointed to the fact that licenses had never been considered property and that they had been revocable without indemnity till 1904. The Conservatives themselves had in the Act of 1904 admitted the principle that whatever compensation there should be must come from the trade.

In the course of a debate in October, Mr. Asquith defended the principle of a time limit. The State, he said, had given the licenses a high value, and license holders had formed the habit of thinking that as licenses had been renewed in the past they would continue to be renewed indefinitely. The law, however, had given no warrant for this expectation, and it could not be admitted that this monopoly value was property in the full sense. A time limit was essential, and he believed the fourteen-year period met all the requirements of justice, but he was willing to "entertain the suggestion that for a short term of years following the fourteen years, when an old license was re-granted, it would be re-granted without attaching to the regrant, as a condition, a surrender of the monopoly value." Later this secondary period was fixed at seven years.

The bill passed the House of Commons on Nov. 20. It was immediately taken up in the House of Lords. Among the objections that were urged against it were that while it dealt most unfairly with the vested interests of the liquor trade, it did not offer any evidence that it would actually reduce intemperance; and also that the Act of 1904 should have a longer trial. Finding that the Lords were on the point of throwing out the measure on the second reading, the Ministry declared that such a course was almost unprecedented, and defended the provisions as to compensation and as to the time limit, saying that sooner or later the State would resume the right to refuse licenses without regard to any vested interests. The bill was defeated by 272 votes against 96 on its second reading, Nov. 27. The result showed that popular opinion was not ready for a measure which dealt so severely with the liquor interests, and threatened so great economic disturbance. The view generally taken was that licensees and investors should be more fairly treated. In addition to many other manifestations of disapproval, a large meeting was held in London under the presidency of Lord Rothschild, comprising important business men, which protested against such an attack on credit and on the great network of industries. There had also been a mass meeting of protest at Hyde Park in September. All the bishops in the House of Lords supported the measure.

Commenting in December on these two great defeats of the ministry (the Education Bill and the Licensing Bill), Mr. Asquith contrasted the attitude of the Lords toward these meas-

ures when put forward by the Liberal party to their attitude toward measures fathered by the Conservatives. He said the present system enabled the leader of the defeated party to decide through the House of Lords what laws should be and what laws should not be passed, and he asked if this state of affairs was to be permitted. He urged the Liberal Party to make the question of the House of Lords' veto the leading issue in their programme. To those who advised a dissolution, he replied that to dissolve Parliament merely because the Lords opposed the party's measures was absurd, and he believed unprecedented. He deprecated especially the action of the Lords in rejecting the measure before they heard any explanation of its provisions.

The government's defeat in these instances showed that the Asquith Ministry at the close of the year was in a weaker condition than the Campbell-Bannerman Ministry at the beginning. There was no sign that the country was stirred on their behalf. On the contrary, the by-elections generally indicated that the Liberals were losing public confidence. Some of their proposed measures were, however, carried through successfully. The most important of these were: The Irish University Bill, the Coal Mines Eight Hour Bill, the London Port Bill, and the Agricultural Land Value Bill (Scotland).

COAL MINES EIGHT HOUR BILL. This limited the time of miners underground to eight hours a day, and provided for an inspector in every colliery to decide on the amount of time necessary for raising and lowering the miners to and from their work. The opposition that it encountered rested mainly on economic grounds. It was alleged that a great increase in the price of coal would follow; and it was also urged against it that the miners themselves did not desire it. There could not have been much sincerity in the latter contention, however, since the bill was passed by a two-party vote, which would not have been the case if it were not demanded by the people at large.

THE PORT OF LONDON BILL. This established a new port authority, to consist of a body of 25 members, of whom 15 are to be elected by the trades and industries concerned, and 10 appointed by the Admiralty, the Board of Trade, the London County Council, the Corporation, and Trinity House. To this body is transferred the revenue of the Thames Conservancy, and it will have power to impose new duties. Its duty is to take steps for the improvement of the port facilities. A measure looking to this end had been presented by Mr. Lloyd-George, when he was head of the Board of Trade, the need of transferring to a public society the control of the board being apparent from the failure of the existing company to make the necessary extensions and improvements.

AGRICULTURAL LAND VALUE BILL (SCOTLAND). In the previous session the House of Lords had rejected two land measures affecting Scotland; the first bill aiming to assure small farmers security in their lands, and the second, the present bill for land valuation, which establishes bases of valuation for the land tax on property which was not built on. In 1908 the Ministry succeeded in putting through the second measure, modified in accordance with suggestions from the Lords. It provided for a separate valuation of the unimproved lands, in

order to lighten the financial burdens as regards buildings, and further the solution to some degree of the city housing problem. The Small Land Holders Bill, for the encouragement of small agricultural holdings in Scotland and the improvement of their tenure, was again rejected in 1908 by the House of Lords (Mar. 11).

CHILDREN BILL. This was a measure of wide scope, including provisions on the subject of cruelty to children, juvenile smoking, the right of entry into homes for destitute children, the segregation of juvenile offenders from adult criminals, separate courts for juvenile offenders, sale of intoxicating liquor to children, etc. It forbade the sale of cigarettes to persons under sixteen years of age, and prohibited such persons from smoking in public places; it imposed fines on anyone giving intoxicating liquors to children under the age of five.

DISCUSSION OF NON-EMPLOYMENT. An Unemployed Workman Bill was introduced by the Independent Labor party and debated in the House, the point at issue being a clause requiring the local authorities to find work for applicants, and to supply them with the means of living if work could not be had. It was opposed as introducing a novel and harmful principle, and rejected by a large majority on March 13. The Socialist members supported it, but the Labor members were divided upon it. The question of employment was very urgent during the year. In October the Trade Union returns showed that 9.5 per cent. of their members were idle, as against an average of 4.8 per cent. for the preceding seven years. The local Distress Committees established by the Unemployed Act of 1905 for carrying on the work of relief dealt during the year ending March 31, 1908, with over 30,000 applications for aid. The London committee declared in its report that a three years' trial had shown that the problem of unemployment could not be dealt with locally, and that the question must be taken up in Parliament. Mr. Asquith, speaking in the House of Commons on Oct. 21, admitted the gravity of the situation, but declared that through various departments and local authorities it was proposed to expend nearly £3,300,000 on various public works, so as to afford increased opportunities for employment.

IRISH UNIVERSITY ACT. This provided for the chartering of two new non-sectarian universities, at Belfast and Dublin, and for the closing of the Royal University. The constituent colleges of the Dublin University are Queens College, Belfast; Queens College, Cork; Queens College, Galway; and a new college at Dublin. No religious tests of any sort are permitted. A body of ten commissioners is placed in charge of the Dublin institution, and a body of seven in charge of the Belfast. The Irish Nationalists and Bishops desired an amendment permitting the building of places of worship within the University grounds, and were much incensed by its rejection in Parliament. Parliament is to grant the sum of £74,000 annually to the constituent colleges of Dublin University. For extraordinary expenses a sum not exceeding £170,000 may be appropriated. Though nominally non-sectarian, the new Dublin University is in reality the Catholic University for which the Irish Roman Catholics had long been struggling. This will be brought about in the natural course of events by the abolition of the religious test, just as Belfast University must be virtually a Prot-

stant university under the same conditions. It had long been the standing complaint of the Roman Catholics that higher education was practically closed to them in their own country, by a system which made it impossible for a conscientious member of their church to study at Dublin. The justice of their contention had been admitted even by Mr. Balfour, who nevertheless maintained that he was helpless in the face of religious bigotry.

THE IRISH QUESTION On Mar. 30 a spirited Home Rule debate took place in the House of Commons, when Mr. John Redmond moved a resolution that the present Irish government was opposed to the will of the Irish people, was inefficient and extravagant, caused universal discontent and distress, and must be reformed. The old objections to home rule had, he declared, been answered by the changes of the last twenty years under unionist government. He pointed to the good effects of the Local Government Act of 1898 as proof that the Irish could manage their own affairs; and he said that the Land Act of 1903 was a sufficient answer to those who said an Irish Parliament would confiscate landlords' property. In the course of twenty years, he said, the government had converted to home rule almost all the officials that it had sent to Ireland. An opposition amendment was moved by Lord Percy, who declared that if the Imperial Parliament gave up its undivided responsibility in the United Kingdom, it would injure alike the prosperity of Ireland and the security of Great Britain; that the argument of nationality was just as strong for separation as for home rule, and that parliamentary government had never been granted on that ground alone. Mr. Birrell, Chief Secretary for Ireland, supported the resolution in a vigorous speech, urging immediate consideration. Mr. Balfour spoke against it. Mr. Asquith said he could not vote for it, because it did not contain a specific recognition of the paramount supremacy of the Imperial Parliament. Lord Percy's amendment was rejected, but the original resolution was amended to the effect that the Home Rule Parliament must be subject to the Imperial Parliament. Thus amended, it passed the House by a majority of 156.

On Nov. 23 Mr. Birrell brought in an Irish Land Purchase Bill, which was heartily supported by Mr. Redmond on behalf of the Nationalists as a thorough measure of reform. Mr. Birrell declared that to carry out the proposals as to land purchase £52,000,000 were required for pending agreements and £100,000,000 more would be needed in the future.

THE NEW PATENT LAW. Aug. 28th was the day fixed by the Patent Law of 1907 for the expiration of the year of grace allowed to foreigners. The law provided that if, at the end of that period, the article or process protected by patent in Great Britain had not been manufactured or operated in that country to an adequate extent, the patent might be revoked after a reasonable interval. This provision was designed to put an end to the practice of foreigners of taking out English patents for a new process which they employed abroad, but did not employ, except to a nominal degree, in Great Britain. They thus prevented their British rivals from using the process, although they themselves did not use it in the country. In some instances they had not used it at all, but had resorted to this device in order to prevent others

from superseding their methods. The effect of the law was said to have already been beneficial, compelling many to start up manufactures of patented articles in Great Britain, and a great increase of production was expected, and an increased employment of British workmen. In Germany, however, there was complaint that the new provision bore heavily upon the German manufacturers. The subject was much discussed during the summer. It was brought up at the Trade and Patent Congress at Stockholm, Aug. 26-30, and at the International Social Democratic Congress at Nuremberg, and the Trade Union Congress at Nottingham in September. At the close of the year it was reported to have led to a great increase in the British plants, many foreigners having either set up plants in Great Britain, or entered into working agreements with British firms.

WOMAN SUFFRAGE. The year was marked by repeated demonstrations on the part of the woman suffragists. On Jan. 18, when the Cabinet met at the Premier's residence in Downing Street to consider the King's speech, women thronged around the building, shouting "Votes! votes for women!" and endeavored to force an entrance but were thrown back by the police. Some chained themselves to the railings and were removed by the police only with great difficulty. Several arrests followed.

On Feb. 21 a number of suffragists attempted to force their way into the House of Commons, in order to present a petition to the Premier. Several of the demonstrators were arrested and sentenced to a term in prison. On June 13 there was a woman suffrage procession, in which the participants were counted by tens of thousands. On June 21 there was a great demonstration in Hyde Park, and on June 30 there was an attempt to "rush" the House of Commons, followed by a number of arrests. Preparations for a similar attack in October led to the arrest and imprisonment of the leaders of the militant suffragists. Mrs. Parkhurst, Miss Chrystabel Parkhurst, and Mrs. Drummond. See WOMAN SUFFRAGE.

REFORM OF THE HOUSE OF LORDS. A select committee of which Lord Roseberry was chairman, was in session from June, 1907, to December, 1908, preparing recommendations for the reform of the House of Lords. The principal recommendations contained in the report are as follows: First, that except in the case of peers of the blood royal it was undesirable that possession of the peerage should of itself give the right to sit and vote in the House of Lords, and that in future the dignity of the peer and the dignity of a Lord of Parliament would be separate and distinct. The latter would carry with it the right to sit and vote, which the former would not. Second, all hereditary peers, including those of Scotland and Ireland, should be formed into an electoral body for the purpose of electing 200 from among their number to sit and vote as Lords of Parliament, and these representative peers should not sit for life, but for a parliament. Third, the Episcopal representatives should number 10, and the two archbishops should sit by right during their tenure of office; the remaining body of bishops should elect eight of their number to represent them during each Parliament. The committee came to no definite conclusions relating to the representation of the colonies and of India, but was in favor of such representation and recom-

mended that the wishes of the countries in question should be ascertained. It was estimated that about 130 hereditary peers at present sitting in the House of Lords would be entitled to sit as Lords of Parliament under these recommendations, while the entire body would number about 350 members.

FOREIGN AFFAIRS. The press abounded during the year with expressions of alarm and hostility on the subject of German designs, and especially German naval policy. These feelings were for the moment greatly intensified by the so-called "Tweedmouth incident." The Kaiser had sent a personal letter to Lord Tweedmouth, First Lord of the Admiralty, and this fact, having been discovered by the military editor of *The Times*, was reported in that paper on March 6. It was immediately taken as an attempt on the Kaiser's part to interfere with British naval affairs. It followed the appearance of an open letter by Lord Esher in the newspapers, which demanded an increase of the naval budget in order to keep pace with the German naval programme, and it was assumed to have been written by the Kaiser as a protest against that demand. The official explanation from Berlin merely declared the letter a private one, and the Kaiser guiltless of any intention to interfere in British affairs. In the House of Commons Mr. Asquith repeated that explanation. Later, however, he said that if the German naval programme were carried out, the British government would not fail to increase the British navy sufficiently to maintain its supremacy. Lord Tweedmouth was shifted from the Admiralty to the Lord Presidency of the Council, and in September retired from the Cabinet. This alarmist spirit was again stirred in the summer time by a speech of Lord Cromer, who called on the government to provide "betimes for a European conflict, which may not improbably be forced on us before many years elapse." He declared that without questioning the honest motives of those who see only peace ahead, it must be remembered that, however earnest individuals may be in their desire for peace, national interests or race passions are liable at any time to lead to war. A third instance was a speech by Lord Roberts, pointing out in some detail the dangers of a foreign invasion of England. The subject had already been discussed extensively on the Continent, where military critics referred to the inadequacy of Mr. Haldane's army plan, which had not turned out as well as had been hoped. It aimed at a territorial army of 300,000, whereas only about 100,000 had enlisted; and it was further remarked that eight or fifteen days a year would not supply the training of soldiers; that in case of war the nation could not place sufficient trust in this army; that the regulars, moreover, were not only inadequate, but were extremely slow in mobilizing and were hardly more than sources of supply for the Colonies and India. In England itself, this view was held in certain quarters, and although conscription was hateful to the people a league had been formed to promote compulsory service. In the English press the ease with which an invasion might be accomplished had been frequently remarked, before Lord Roberts made it the subject of his serious and extended discussion. (See *Army; Navy*.) On the other hand, the *entente* with France was greatly strengthened by the visit of the French President to London (see *FRANCE, History*); and

the friendly relations with Russia, already marked by the Anglo-Russian Convention, were cemented by the visit of King Edward to Reval, where he held a conference with the Czar. The Anglo-Russian Convention had, to be sure, been sharply criticized by a number of persons, including especially Anglo-Indians, on the ground that too much had been conceded to Russia; and they continued in 1908 to regard the Russian menace as all important in Afghanistan. Lord Curzon was the chief of these critics, and his first speech on entering the House of Lords consisted of a minute examination of this agreement, with adverse comments upon it. The King's meeting with the Czar was criticized by the Socialists and certain Radicals. The King's speech on closing Parliament referred especially to the cordial feelings occasioned by the American fleet's visit to Australian waters, and to the friendly relations with the United States, as shown in the conclusion of treaties of arbitration and for the settlement of questions at issue. It declared that the main source of anxiety in foreign affairs was the Balkan question. For an account of the British policy in that matter, see the article **BALKAN QUESTION**, and as to the Congo Treaty see **BELGIUM and CONGO**, paragraphs on *History*. See also **MACEDONIA and TURKEY**.

GREECE. A kingdom of southeastern Europe. Area, 24,973 square miles. Population (1907), 2,631,952 (1,324,943 male and 1,307,010 female), against 2,433,806 in 1896. The principal cities, with their populations in 1907, are: Athens, 167,479; Piræus, 71,505; Patras, 37,724; Corfu, 27,397; Volos, 23,563; Larissa, 18,001; Trikkala, 17,809; Hermopolis, 17,773; Pyrgos, 13,690; Zante, 13,580; Calamata, 13,123; Chalcis, 10,958; Tripolis, 10,789; Laurion, 10,007.

PRODUCTION. The chief mineral products are iron, manganese iron, calamine, silver-lead, manganese, chrome, magnesite, lignite, emery, and salt. The total mineral production in 1906 was valued at \$4,105,000. Agriculture is mainly carried on by peasant proprietors and métayers, and is in a backward state. Wheat (8,000,000 bushels in 1907), barley, rye, maize, and maslin are produced. The tobacco crop in 1906 was 6,000 tons. The export of silk cocoons amounts to about \$200,000 annually. There is a considerable production of wine, olives, citrons, oranges, lemons, and figs. The wine production in 1907 was 32,000,000 gallons. The currant production of 1908 was estimated at 165,000 tons, and the shipments of currants for the season 1907-8 were about 125,000 tons. The production of olive oil in 1907 was 57,923,000 litres (1 litre = 1.0567 quarts), worth about one franc per litre. Adding the value of edible olives, the total value of the Greek olive oil crop in 1907 was about 63,000,000 francs. The crop of 1908 was reported a failure, barely sufficing for domestic needs. Figs grow mostly in the province of Messina, near Calamata, and are of poor quality. The fig crop of 1907 was 11,600 tons; of 1908, 9,000 tons. About 1,000 acres are under sugar-beets, and there is one beet-sugar factory at Lazarina, Thessaly.

COMMERCE and COMMUNICATIONS. The imports and exports in 1907 amounted to 148,393,000 and 116,049,000 drachmas, respectively, against 144,636,000 and 123,526,000 drachmas in 1906 (1 drachma = 1 franc = 19.3 cents). The leading imports are cereals, textiles, chemicals, metal

goods, timber, and living animals. The leading exports are currants, olive oil, tobacco, iron ore, wine, silver-lead ore, figs, silk and cocoons, olives, and zinc ore. The trade is principally with Great Britain, Russia, Germany, Austria-Hungary, Turkey, France, and Bulgaria. The merchant marine consisted of 255 steamers, of 266,915 net tons (1907), and 880 sailing vessels of 50 tons and over, aggregating 167,243 tons (1905). The railways had a length of over 865 miles in 1908, and the telegraph lines, 4,903 miles in 1906. The railway from Piræus to the Turkish frontier, about 270 miles, was to be completed by the end of 1908. In September, 1908, this railway was opened to Larissa, about 28 miles from the frontier. It connects with the Monastir-Saloniki line and thus puts Greece in railway communication with the Occident.

GOVERNMENT. The legislative power is vested in a single chamber (Boulé), consisting of 235 deputies, elected by manhood suffrage for a term of four years. The present King is George I., son of the late King Christian IX., of Denmark, who was elected King of the Hellenes in 1863 by the National Assembly. The Premier of the Cabinet of July 5, 1908, was G. N. Theotokis.

FINANCE. The ordinary revenue and expenditure in 1906 were 128,753,358 and 124,461,577 drachmas, respectively. The budget for 1908 estimated the revenue at 136,642,784, and the expenditure at 134,042,556 drachmas. The principal sources of revenue were estimated as follows: Direct taxes, 22,172,000; indirect taxes, 54,760,000; stamps, 14,950,000; monopolies, 13,650,000; and of expenditures: Public debt, 35,698,110; interior, 18,543,510; war, 18,628,760; marine, 8,405,176; worship and instruction, 6,850,646. The external gold debt stood on Dec. 31, 1907, at 717,582,500 drachmas; the paper debt, at 166,891,073 drachmas.

ARMY AND NAVY. Military service is compulsory and universal, commencing in the 21st and lasting until the 51st year, with the usual exemptions, except that an exemption fee or tax must be paid. The term of service is divided as follows: 2 years in the active army, and 10 years in the reserve; 8 years in the territorial army and, finally, 10 years in the territorial army reserve. The maximum strength of the peace army is 29,000 men; that of the field army about 50,000 men; and that of the reserves about 100,000 men, of all classes. The infantry had been rearmed with the Mannlicher-Schönauer rifle, model 1903, and the artillery with a new quick-firing gun, model of 1907. Reservists to the number of 30,000 were mobilized for training in 1908. The budget for 1907 was about \$4,100,000. For 1908 the effective strength of the standing army was fixed at 1,878 officers and 19,416 men; of the territorial army, 76,800. The effective navy at the beginning of 1908 consisted of 3 coast defense vessels, aggregating 15,000 tons; 1 armored gunboat, 1,800 tons; 10 torpedo boats, 675 tons. Total, 14 ships of 17,475 tons, showing a decrease during 1907 of 700 tons.

HISTORY. An important question before the government in 1908 was the reorganization and improvement of the navy. The aid of France had been assured, if Greece sought a loan for that purpose, and it was proposed that the reorganization should be effected under the direction of the French admiral Fournier. The latter's plan, however, which looked to a navy consisting mainly of scouts and submarines, was vigorously opposed, and there was a stormy de-

bate on the subject in the Chamber, his opponents contending that it would be absurd to contract a heavy loan for a navy of that description, when the army reorganization, which was urgently needed, was deferred for lack of funds. Parliament voted the budget April 18, including funds for naval reorganization and the remuneration of foreign officers, but the opposition to the choice of Admiral Fournier continued. A change took place in the Cabinet early in July, whereby M. Gounaris, former President of the Chamber, became Minister of Finance. Greece acquiesced in the action of the Powers in announcing after Crete's proclamation of union with Greece that they would make it a subject of negotiation with Turkey, and that, meanwhile, order on the island must be maintained. See **BALKAN QUESTION** and **CRETE**.

GREEK CATHOLIC CHURCH OR GREEK CHURCH. A religious body, which comprises in its widest sense all those churches following the Greek or Greco-Slavonic rite. Its official title is the Holy Orthodox Catholic and Apostolic Church. Throughout the world it has a membership of about 100,000,000. In the United States are four branches, as follows: Russian Orthodox, with a membership of about 55,000, with 103 churches and 75 ministers; the Greek Orthodox, 100,000 members, with 42 churches and 43 ministers; the Syrian Orthodox, 30,000 members, with 21 churches and 13 ministers, and the Armenian, 8,500 members, 21 churches, and 15 ministers. The Archbishop in charge of the Russian Orthodox Church formerly had his seat in Alaska, but now resides in New York City. The Greek Church has no Bishop in the United States. The Syrians belong to the Synod of Antioch. They have a Bishop consecrated by the Russian Archbishop.

GREER, DAVID HUMMELL. Seventh Bishop of the Protestant Episcopal Diocese of New York. He was born in Wheeling, W. Va., in 1844, graduated at Washington College, Pa., in 1862, and at the Protestant Episcopal Seminary at Gambier, O., in 1865. He was ordained deacon in 1866 and priest in 1868, and afterward was rector of parishes in Clarksburg, W. Va., Covington, Ky., and Providence, R. I. In 1888 he became rector of St. Bartholomew's Church in New York city. He was elected bishop coadjutor in 1903, and, upon the death of Bishop H. C. Potter (q. v.) on July 21, 1908, became Bishop of New York City.

GREENLAND. See **DENMARK, Danish Colonies**; **POLAR RESEARCH**.

GRENADA. A British island of the West Indies, forming with Carriacou an administrative division of the Windward Islands (q. v.). Total area, 133 square miles; total population (1906), 70,505. Over 30,000 acres are under cultivation. Coffee, cacao, nutmegs, fruit, rubber, and cotton are grown. The forests yield valuable woods, gums, and medicinal plants. The imports and exports in 1907 amounted to £288,665 and £417,299, respectively. The revenue in the fiscal year 1907-8 was £79,871; the expenditure, £68,383, and the public debt, £123,670.

GUADELOUPE. An island of the Lesser Antilles, the largest of the French West India Islands. Area, 619 square miles; population (1901), 157,806. With its dependencies, La Désirade, Les Saintes and Petit-Terre, Marie-

Galante, St. Barthélemy, and St. Martin, it constitutes a colony with an area of 732 square miles and a population (1906) of 190,273. The capital is Basse-Terre, with 8,626 inhabitants. The principal port is Pointe-à-Pitre, 14,861 inhabitants. The principal products are sugar, rum, coffee, and cacao, besides manioc, tobacco, bananas, sweet potatoes, maize, and vegetables. In 1906 there were grown 6,129 pounds of cotton. The imports and exports in 1907 amounted to 13,425,655 and 16,268,946 francs respectively, the trade with France being represented by 9,163,000 francs of imports and 15,875,000 francs of exports. The colony is administered by a Governor, an Executive Council, and an elective Legislative Council. It is represented in the French Parliament by a senator and two deputies. In 1907 the military force consisted of 94 Europeans. The local budget for 1907 balanced at 4,756,000 francs. The debt stood in 1907 at 10,575,000 francs. The expenditure of France in 1908 was fixed at 430,000 francs. The Governor in 1908 was M. Ballot.

GUAM. A possession of the United States lying in the Pacific Ocean, the largest of the Ladrone Islands. It is situated in lat. 13° 30' N. and long. 144° 45' E. It is the southernmost of the Ladrone group, and is about 1,500 miles east of Manila and nearly the same distance southeast of Yokohama. The island has an area of about 150 square miles, and is 29 miles long and from 3 to 10 miles wide. Its chief importance is as a naval station and port of transit between America and Asia. The natives consist chiefly of aboriginal Chamorros intermixed with Tagalogs and Malays. Their only occupations are agriculture and fishing. The population of the island in 1908 was about 9,000, of which more than half are in the capital, Agaña.

GOVERNMENT. Guam has not been organized as a territory by act of Congress or otherwise, and the constitution and laws of the United States have not been extended to it. Its administration is in the hands of the Navy Department and a naval officer is Governor. In 1907 an order was issued by President Roosevelt directing that all official communications and reports relating to Guam should be transmitted to the Secretary of the Interior. Consistent and successful efforts have been made since the acquisition of Guam by the United States to bring about better educational, social, and sanitary conditions among the inhabitants. In 1908 a thorough investigation was made of the agricultural, social, and sanitary conditions, but the reports that were prepared had not been published at the end of the year. Successful experiments were made in agriculture by the Agricultural Experiment Station (q. v.) established by the Department of Agriculture. The Governor is assisted in his administration by an advisory and legislative council, composed of certain officers, with a minority of natives. The courts are of three classes, a court of appeals, a court of first instance, and courts of justice. The island is divided into four districts for purposes of administration, each with an executive head called the Gobernadorcillo (Commissioner). These officials are natives and are elected by popular vote. Directly after the American occupation schools were established in the island, and great progress has been made in the instruction of the natives. Night schools are conducted in the largest towns. The Secretary

of the Navy in his report for 1908 renews recommendations made in previous year that Congress enact legislation establishing a form of government for Guam. Similar recommendations were made by President Roosevelt in his message to the Sixtieth Congress. The Governor of Guam in 1908 was Captain Edward J. Dorn, U. S. N.

GUARANTEE OF DEPOSITS. See **BANKS AND BANKING.**

GUATEMALA. The most northerly republic of Central America. Area, 48,300 square miles; population (1903), 1,842,134, of whom 750,615 were whites. On Dec. 31, 1906, the population was estimated at 1,882,992. The principal cities, with their populations, are: Guatemala, the capital, 125,000; Coban, 30,770; Quezaltenango, 28,940; Totonicapan, 28,310; San Pedro, 10,190.

EDUCATION. In 1907 there were 1,262 government primary schools, with 44,240 pupils. For secondary instruction there are schools at Guatemala City, Quezaltenango, and Chiquimula, under the direction of Belgian professors. The higher educational institutions at Guatemala City and Quezaltenango include schools of law, medicine, dentistry, pharmacy, and commerce. There are a national school of music and a school of fine arts. The pupils of the night schools for working people are exempt from military service. Many Guatemalan youths are educated abroad at government expense. There is a corps of men and women teachers from the United States.

PRODUCTION. The principal export crop is coffee, of which 90,199,486 pounds were exported in 1907. The output of 1907-8 was estimated at 50,000,000 pounds, and of 1908-9 at 81,000,000 pounds. Sugar covered in 1906 about 37,000 acres; the exports were 1,571,900 pounds in 1906, and 4,177,400 pounds in 1907. Tobacco covers some 1,700 acres. Some 200,000 acres have been acquired by foreign capitalists for rubber planting. In 1906 there were exported 376,300 pounds of rubber, and 516,719 bunches of bananas; in 1907, 392,160 pounds and 599,680 bunches, respectively. Wheat, maize, sweet potatoes, and beans are grown, but the cereal output is insufficient for the needs of the country. The cotton acreage is increasing. A decree of July, 1908, made the cultivation of a certain minimum of cotton obligatory on all municipalities. Some gold, silver, and salt is produced, but the mineral wealth has as yet been barely touched. The manufacturing industries include a cotton factory employing 250 workers, near Quezaltenango, breweries, sugar mills, and tanneries.

FOREIGN COMMERCE. In 1906 the total imports were valued at \$7,220,760, and the exports at \$7,136,280; in 1907 they were \$7,316,574 and \$10,174,486 respectively. In 1907 the imports included cotton goods, valued at \$1,470,975; railroad material, \$552,504; silk manufactures, \$184,000; woollens, over \$90,000; flour, \$291,810; rice, \$34,000; electrical apparatus, \$31,000. The exports of 1907 included coffee, \$7,297,346; hides, \$292,927; bananas, \$179,904; woods, mainly cedar and mahogany, \$236,464. Other exports were cacao, chicle, coconuts, deer skins, horns, vegetable oils, besides those mentioned under *Production*. The trade with the principal countries in 1907 was as follows: United States, imports from, \$2,905,457; exports

to, \$3,413,418; Great Britain, \$1,590,874 and \$1,071,468 respectively; Germany, \$1,574,854 and \$5,317,509.

COMMUNICATIONS. In 1907 the ports of Guatemala were entered by 549 vessels, of 975,526 tons. The chief ports are Puerto Barrios and Livingston, on the Atlantic, and San José, Champerico, and Ocos, on the Pacific. The Guatemala Northern railway connecting San José on the Pacific with Puerto Barrios on the Atlantic, *via* Guatemala City, a distance of 269 miles, was formally opened on Jan. 19, 1908. Quezaltenango is connected by rail with Champerico. Other lines were being constructed during 1908 by Germans and Americans. The total length of railways in 1908 was 440 miles. The length of telegraph lines in 1907 was 3,696 miles.

FINANCE, ETC. In 1907 the total revenues amounted to 35,297,823 paper pesos (of about 8 cents each), and the total expenditures, 44,560,221, including 22,700,026 pesos for the service of the public debt. The budget estimate of expenditure for 1908-9 was 35,488,692 paper pesos. On Dec. 31, 1907, the gold debt stood at 9,719,754 pesos and the paper debt at 63,307,003 pesos. The regular army numbers about 7,000 officers and men, the cost of which is about one-tenth of the public expenditure—about \$3,000,000 for 1908. The war strength, consisting of all citizens between 18 and 30 years of age, is 57,000, and the reserve, consisting of those between 30 and 50 years of age, 30,000 men. The President in 1908 was Manuel Estrada Cabrera, reelected in 1905, whose term expires in 1911.

HISTORY. The message of President Estrada Cabrera at the opening of the regular session of the National Assembly on Mar. 1, 1908, began with congratulations to the country on the satisfactory state of its international relations. At the opening of the Inter-oceanic (or Guatemala Northern) Railway all the members of the diplomatic corps were present. The government participated in the second international peace conference held at The Hague in 1907, in the international sanitary conference which met in Mexico in Dec., 1907, and in numerous other international gatherings. During the conflict in 1907 between Honduras and Nicaragua, the Guatemalan government had maintained its neutrality undisturbed. The President expressed entire approval of all the decisions of the Central American Peace Conference held at Washington in the latter part of 1907, and gave expression to the hope that peace in Central America would never again be disturbed. Turning to internal questions the President stated that a committee had been appointed to draft amendments to the school law, in order to extend to the towns the system of practical instruction adopted in the capital. Buildings for practical schools for men have been erected in various parts of the Republic. The General Bureau of Mines, Industries, and Commerce, established in 1907, made a collection of metallic minerals and of materials suitable for purposes of construction, sculpture, ceramics, etc. This collection, exhibited at the National Exposition held at the capital in the early part of 1908, manifested the great mineral wealth of Guatemala. The fisheries established in Lake Amatitlan, in pursuance of the law of Aug., 1907, have given satisfactory results and may lead to the establishment of a new industry in the country. Public

works, the telegraph and telephone service, and the railroads made notable progress during the year. On April 20, 1908, an attempt was made to assassinate President Cabrera on his way to the National Palace to receive the new American minister. The following day martial law was proclaimed in Guatemala City, and three days later the President announced that eighteen men implicated in a plot to assassinate him had been executed. During the year there were difficulties with Honduras, whose special commissioner to Guatemala was arrested and then (May 21) released; with Mexico, which country was reported in May to be massing troops on the frontier; and with Nicaragua, which, in June, made strong representations to Guatemala to obtain the release of Nicaraguan citizens who were held prisoners in Guatemala. On Nov. 2, 1908, the Guatemalan Secretary of State was received by President Roosevelt as Envoy Extraordinary and Minister Plenipotentiary. The object of the mission was to express to the United States government the thanks of the Guatemalan government and people for its part in establishing peaceful conditions in Central America and for its long-standing friendship towards Guatemala.

GUIANA. See **BRITISH GUIANA**; **DUTCH GUIANA**; and **FRENCH GUIANA**.

GUINEA, FRENCH. See **FRENCH GUINEA**.

GUNPOWDER. See **MILITARY PROGRESS**.

GYMNASTICS. The tenth annual intercollegiate gymnastic meet was won by Princeton. The result was a surprise, as New York University, champion for 1906 and 1907, had made much the better showing in the preceding dual meets. In the intercollegiate contest Princeton scored 20 points; New York University and Columbia were tied for second place with 10 points each; Yale and Rutgers were tied at 6 points each; and Harvard and Pennsylvania each scored one point. The individual championship was won by E. W. McCabe of Princeton, with a total of 309.8 points; H. S. Schoonmaker of Columbia was second, with 296 points, and H. L. Dowd of Princeton was third, with 293.2 points. In the dual meets New York University defeated Princeton 33 to 15, Yale 33½ to 20½, and Columbia 32½ to 22½. Columbia defeated Yale in a dual meet by the score of 33 to 21. The all-round national championship of the American Athletic Union was won by Fred Steffens of the Brooklyn National Athletic Club, who scored a total of 50 points. The banner given to the team, scoring the largest number of points, was won by the West Side Y. M. C. A., which had a total of 20 points in the eight events. At the international tournament, which took place at Frankfort-on the Main in July, Mapler of Munich won the all-round championship, scoring 130 points.

GYPSY MOTH. See **ENTOMOLOGY**.

HADLEY, HERBERT SPENCER. Governor-elect of Missouri. He was born at Olathe, Kan., in 1872, graduated at the University of Kansas in 1902 and at the Northwestern University Law School; and in 1894 began the practice of law at Kansas City, Mo. From 1898 to 1901 he was prosecuting attorney of Jackson County and in 1904 was elected Attorney-General on the Republican ticket. As Attorney-General he aided greatly in carrying

out Governor Folk's reform programme, rendering especially valuable service in collecting evidence against the Standard Oil Company and its subsidiary companies, and against the Harvester Trust for violations of the State anti-trust laws. In 1908 Mr. Hadley received the Republican nomination for Governor and in the ensuing elections was given a plurality of over 15,000, running far ahead both of his associates on the State ticket and of his party's national ticket. See **MISSOURI**.

HAFID, MULAL. Sultan of Morocco, proclaimed on February 11, 1908. He was born in 1873, a half brother of Abd-el-Aziz, whom he drove from the throne, and was educated at the University of El Azaar, in Cairo. For several years he was viceroy of Southern Morocco, but in August, 1907, he proclaimed himself Sultan, and took the field against Abd-el-Aziz. He was successful, and after being proclaimed Sultan was eventually recognized by the Powers. See **MOROCCO**.

HAGUE CONFERENCE. See **INTERNATIONAL ARBITRATION**.

HAITI. A republic occupying the smaller western half of the island of Haiti, West Indies. Including the adjacent islands of Tortuga, Gonaive, and Vache, its area is estimated at between 10,200 and 11,000 square miles. According to an ecclesiastical estimate, the population numbered about 1,500,000 in 1906, nearly all negroes and mulattoes, with some 200 Europeans. The prevailing language is French. The principal cities, with their estimated populations, are: Port au Prince, the capital, 70,000; Cape Haitien, 29,000; Aux Cayes, 25,000; Gonaives, 18,000; Port de Paix, 10,000. There are some 400 national elementary schools, besides private ones, and 5 national lyceums.

PRODUCTION AND COMMERCE. The most important agricultural product is coffee, covering 125,000 acres, of which some 50,600,000 pounds were exported in 1906. Other important products, with the amount of their exports in 1906, are as follows, in pounds: Cacao, 4,582,000; cotton, 3,865,000; cotton seed, 6,208,000; pité hemp, 399,000; sisal hemp, 670,000; hides and skins, 660,000; orange peel, 494,000; honey, 6,700; wax, 149,000; peanuts, 30,000; woods, including cedar, fustic, logwood, mahogany, and white wood, 122,598,000. The cultivation of tobacco is extending, and there is a cigar and cigarette factory. Sugar is grown, there being four sugar mills, but no refineries. Rum and other spirits are distilled. There is a tannery employing some 200 native workmen. Cuban and Italian shoemakers supply the local demand for shoes. The mineral wealth, which is neglected, includes gold, silver, copper, iron, manganese, tin, antimony, nickel, sulphur, coal, kaolin, gypsum, limestone, and porphyry. The imports and exports for the fiscal year 1904-5, the latest for which the data had been published, in 1908, amounted to \$3,871,059 and \$8,967,862 respectively. According to United States returns for the fiscal year ending June 30, 1908, the imports from Haiti amounted to \$689,045, and exports to Haiti, \$3,649,172. The United States furnishes about 70 per cent. of the total imports, Great Britain 13, France 10, and Germany 2 per cent. In 1907 Port au Prince was entered by 186 vessels of 182,000 tons; Aux Cayes was entered and cleared in 1906 by 264 vessels of 312,294 tons. In 1905 the

merchant marine consisted of 5 steamers, aggregating 908 tons net, and 13 sailing vessels of 50 tons and over, aggregating 2,280 tons. There is a 15-mile railway from Cape Haiti to Grande Rivière, and a light railway of 28 miles from Port au Prince to Lake Assuéfi.

FINANCE, ETC. In 1906 the export duties amounted to \$2,730,761 gold, and the import duties to 5,135,250 paper gourdes (worth about 20 cents each). For 1906-7 the revenue was estimated at \$3,973,899 gold, and 6,186,122 paper; the expenditure, at \$3,999,428 gold, and 6,167,059 paper gourdes. The greater part of the expenditure is for the service of the debt, which at the end of 1906 amounted to \$26,134,438 gold, and 12,429,739 paper gourdes. The National Bank of Haiti, with a capital of 10,000,000 francs, has its headquarters in Paris and six offices in Haiti. It negotiates loans for the government, issues bank notes, etc. The authorized strength of the regular army is about 7,000 men of all ranks, but the actual peace strength is 650 officers and men of the line, which constitutes the Government Guard. There are from 10 to 20 generals who act as aides to the President of the Republic. The navy consisted at the beginning of 1908 of 2 gunboats, of 1,472 tons, and 3 steamers, of 2,310 tons. In 1908 Nord Alexis was President until his overthrow on Dec. 2. (See *History*.) On Dec. 20, General Antoine Simon was inaugurated President.

HISTORY. Disturbed political conditions continued during 1908. A band of exiles, led by a former lieutenant of Gen. Firmin's, landed near Gonaives, Jan. 15, and attempted a revolution, but President Nord Alexis took vigorous measures against them and the movement was suppressed. On Mar. 15 he had a number of political suspects arrested and immediately executed. American, British, French, and German warships thereupon gathered at Port au Prince. Gen. Firmin and other fugitives found refuge at the French Consulate at Gonaives. The Haitian government at first demanded their surrender but afterward agreed to their leaving the country, and on Mar. 21 they went on board a French warship and were taken to St. Thomas. The failure of the revolutionary movement was attributed in considerable measure to the action of the United States government in preventing the despatch of arms and ammunition intended for General Firmin. The latter's agent Giordani was arrested in New York on the eve of the outbreak and a ship's cargo of war equipment together with a large sum in counterfeit Haitian currency was seized. General discontent with the stern rule of Nord Alexis was intensified by his ruthless measures of repression. On Nov. 19 an insurrection broke out at Aux Cayes. It was headed by General Antoine Simon, commander of the troops in the Southern department of Hayti, who was suspected of disloyalty by Nord Alexis and deposed. General Simon thereupon declared against the President and set out for Port au Prince at the head of his soldiers, who constituted the strongest and best drilled and military force in the country. He met little opposition on his march, the government's troops everywhere joining hands with the revolutionists. On Nov. 27, Simon defeated General Cyriouque. The aged Nord Alexis, though deserted by practically his entire cabinet, the members of which either went over to the enemy, or fled, was determined

to continue the struggle. On Dec. 2, the people of Port au Prince, alarmed by the presence of General Simon's army in the neighborhood of the city, rose in insurrection. A Committee of Public Safety, headed by ex-President Légitime, was organized and the crowds prepared to storm the presidential palace. The presence of the American and French men-of-war in the harbor probably prevented serious bloodshed. The President's life was saved by the intervention of the French minister, under whose protection Nord Alexis left the palace. He took refuge on a French cruiser, which conveyed him to Kingston, Jamaica. He had maintained himself in power for nearly seven years, through mingled skill and ferocity. On Dec. 5, General Simon entered Port au Prince with his army of 5,000 men. Several old aspirants to the presidency such as General Firmin, General Sain, and General Fouchard now came forward and for a time the renewal of civil war seemed probable. General Simon was not popular in the north, where disturbances took place at Port de Paix, Hinche, and Jean Babel. But Simon's military strength was sufficient to overawe all his rivals, and on Dec. 17 he was elected President by the unanimous vote of Congress. He assumed office on the 20th. As a measure of prudence, he appointed some of the unsuccessful presidential candidates to positions in his cabinet.

HALDERMAN, JOHN A. An American soldier and diplomat, died on Sept. 21, 1908. He was born in Kentucky, on April 15, 1833, and studied law in that State. In 1854 he went to Kansas, where he subsequently held several political positions, serving as private secretary to the governor, judge of the probate court, mayor of Leavenworth, State legislator, and regent of the University of Kansas. At the outbreak of the Civil War he entered the Federal Army, in which he served as major in the Kansas First Volunteer Infantry, and afterward as major-general. In 1861, he was appointed provost marshal-general of the Army of the West and became a member of the staff of General Nathaniel Lyon. At the battle of Wilson's Creek, his bravery won for him honorable mention and led to his appointment to the command of his regiment. In 1862 he organized the Northern Division of the Kansas State troops against the expected invasion of the Confederate Army. In 1880 he was appointed consul at Bangkok, Siam; later became Consul-general, and, finally, in 1882, was made the first minister to Siam. In 1885 he resigned and returned to the United States.

HALÉVY, LUDOVIC. A French dramatist and novelist, died on May 7, 1908. He was born at Paris, on Jan. 1, 1834, and was educated at the Lycée Louis le Grande. In 1852, he entered the government service as an attaché to the Minister of State; in 1858 was made head of the Colonial Bureau, and in 1860 became clerk to the Secretary of the Legislative Corps. He resigned this position in 1865 to devote his entire time to writing. While in the employ of the government he wrote several librettos, for most of which Offenbach composed the music. The most important of these early works were the operettes *Ba-ta-clan* (1855), *Le docteur Miracle* (1857), which he wrote in collaboration with Léon Battu, and for which Lecocq and Bizet wrote the music; and the *Orphée aux enfers* (1861). The greater part of the remainder of

his writings for the theatre were prepared in collaboration with Henri Meilhac. Among these are Offenbach's librettos, including *La belle Hélène* (1865); *Barbe-bleue* (1866); *La vie parisienne* (1866); *La grande duchesse de Gérolstein* (1867), and *La Périhole* (1868); and Bizet's *Carmen* (1875). The two writers also collaborated in the production of several more pretentious works, such as: *Froufrou* (1869), a comedy in five acts, their most successful work of the kind; *La Réveillon* (1872); *La Petite marquise* (1874); *La Boule* (1874); *La cigale* (1877); *Le mari de la débutante* (1879); *Le roi Candaule*; and *La roussotte*, which was the last work in the preparation of which Meilhac collaborated. In addition to writing for the stage, Halévy produced a few novels and romances, and after the breaking off of his association with Meilhac he devoted nearly all his time to this class of writing. His principal productions of this class are *L'invasion* (1872); *Madame et Monsieur Cardinal* (1873); *Les petites Cardinal* (1880); *Un mariage d'amour*, (1881); *L'abbé Constantin* (1882); which is the best-known and most widely read romance, and which also has been successfully dramatized; *La famille Cardinal* (1883); *Criquette* (1883); *La Princesse* (1886); *Karikan* (1888). Halévy was elected to the French Academy in 1884.

HALL, CHARLES CUTHBERT. An American theologian, died on Mar. 25, 1908. He was born in New York City, on Sept. 3, 1852, and studied with tutors until his sixteenth year, when he entered Williams College, where he graduated in 1872. He then studied for two years at Union Theological Seminary, and for another year (1874-75) at the Presbyterian College, in London, and at the Free Church College in Edinburgh. He had been licensed in 1874 to preach, and in 1875-77 he was pastor of the Union Presbyterian Church of Newburgh, N. Y. He was then pastor of the First Presbyterian Church of Brooklyn, N. Y., from 1887 to 1897, when he became president of the Union Theological Seminary, a position he held until his death. In 1902-03 and in 1906-07, he was Barrows lecturer to the Far East for the University of Chicago, and he was also Cole lecturer at Vanderbilt University in 1905, and Noble lecturer at Harvard in 1906. He received the degree of D.D. from the University of New York (1890), from Harvard (1897), and from Yale (1901), and an LL.D. from Union College in 1905. Dr. Hall's presidency of Union Theological Seminary began at the time of the controversy over the higher criticism of the Bible, as exemplified particularly in the writings of Dr. Briggs. Toward this question he adopted a very liberal and tolerant attitude, declaring that the fact that Professor Briggs had entered the Episcopal Church should not affect his connection with the faculty of the Seminary. He resolutely maintained this position in the face of attempts to boycott that institution. His mission to the Far East was successful because of his earnest striving to find a common ground, and his ability to separate what was permanent and essential in Christianity from what was merely temporary and accidental or racial. He was a zealous student of hymnology and liturgy, anxious to introduce into the service of the non-Episcopal churches such forms as would give dignity and completeness to worship, and to restore it to the

place from which it has often been dislodged by over emphasis on the sermon.

HALSTEAD, MURAT. An American journalist, died on June 2, 1908. He was born at Paddy's Run, Butler County, Ohio, on Sept. 2, 1829, graduated at Farmers' College, near Cincinnati, in 1851, and then began general newspaper work in Cincinnati. He started in that city a Sunday paper, the *Leader*, which expired with its third issue; then became news editor of the *Atlas*, and then, after serving for a few days on the staff of the Cincinnati *Enquirer*, assistant editor of the *Columbian*, a literary weekly. In 1853 he became a reporter for the Cincinnati *Commercial*, in which he obtained an interest in 1854, and which in 1883 was consolidated with the Cincinnati *Gazette*. Of this paper, Halstead became editor-in-chief, and he made it one of the most influential daily newspapers in the Middle West. He opposed Blaine in 1876, but afterward was one of his staunchest supporters. He was nominated minister to Germany in 1889 by President Harrison, but the Senate, by a close vote, refused to confirm the nomination, apparently because of the articles Halstead had written insisting that the purchase of seats in the Senate was no uncommon occurrence. He published several works on historical subjects.

HAMY, THÉODORE JULES ERNEST. A French anthropologist, died on Nov. 18, 1908. He was born in Boulogne-sur-Mer, on June 22, 1842; studied medicine at Paris, receiving his diploma in 1868; became an assistant naturalist in the department of anthropology of the Museum of Natural History in 1872, and professor of that subject in 1892. He became a member of the Academy of Inscriptions in 1890, and was made an officer of the Legion of Honor in 1889. He published *Précis de paléontologie humaine* (1870); with De Quatrefages, professor of anthropology in the Museum of Natural History, the valuable *Crania ethnica* (1875-82); *Anthropologie du Mexique* (1884); *Decades Americanae* (1883). He was appointed in 1890 director of the Museum of Ethnography, which had just been established in the Trocadéro. Here for the next 20 years he did much effective work, though always hampered by the lack of funds. In connection with his work he published: *Origines de Musée d'Ethnographie* (1890) and the *Galerie américaine du Musée d'Ethnographie du Trocadéro* (1897); and *Études historiques et géographiques* (1896).

HANFORD, BEN. Socialist candidate for vice-president. See **PRESIDENTIAL CAMPAIGN.**

HANLON, EDWARD. A Canadian oarsman, died at Toronto on Jan. 4, 1908. He was born there, on July 12, 1855, and began his career as a sculler in 1873, and in 1876 won the singles at the Centennial Exposition. From 1876 to 1884 he defeated such oarsmen as Wallace Ross (twice); Morris, in 1878, for the American championship; Plaisted Courtney, Hawdon (on the Tyne), Elliott, champion of England (on the Tyne); Trickett, for the world's championship (twice on the Thames, 1880 and 1882); Teemer, Lee, and Gaudaur. In 1885, Teemer won the American championship from him at Troy and he defeated him again in 1887; and Beach, the English oarsman, beat him four times in Australia. Hanlon rowed his last race in 1897, when he was defeated at Orilla, Ontario, by Gaudaur. Hanlon's sculling stroke was remarkable for its apparent ease, perfect

finish and sustained power, the result being that his shell seemed to lose none of its speed between strokes.

HARBORS. See **DOCKS AND RIVER AND HARBOR IMPROVEMENT.**

HARDEN, MAXIMILIEN. German journalist See **GERMANY**; paragraph, *Harden Trial.*

HARMON, JUDSON. An American lawyer and statesman, was elected governor of Ohio at the general election of 1908. He was born in Newton, O., on Feb. 3, 1846, and graduated at Denison University in 1866. He settled in Cincinnati, was judge of the Court of Common Pleas in 1876-78, and of the Superior Court from 1878 to 1887, when he resigned to resume the practice of law. He was appointed Attorney General of the United States in 1895 and served throughout the remainder of Cleveland's term. He was nominated for governor by the Democratic State convention at Columbus on May 6, 1908, and was elected in the following November, receiving about 50,000 votes more than the national ticket of his party. At the time of his election he was acting as receiver of the Cincinnati, Hamilton & Dayton Railroad Company.

HARRIMAN INVESTIGATION. See **RAILWAYS.**

HARRINGTON, CHARLES. An American educator, physician, and sanitarian, died on Sept. 11, 1908, in Lynton, Devonshire, England. He was born in Salem, Mass., on July 29, 1856, was educated at Bowdoin College (1873-74) at Harvard, where he graduated in 1878, and at the Harvard Medical School (1881); and he also studied for two years at Leipzig, Strasburg, and Munich. He was appointed assistant in chemistry at Harvard in 1883, was assistant professor of that subject there in 1893-1906, and professor of hygiene during the remainder of his life. He became associated with the Massachusetts State Board of Health in 1900, for nine years was chemist for the Board, in 1889-1904 was in charge of the bureau of milk inspection of the Boston Board of Health, and in 1904 became secretary of the State Board. For several years he was on the staff of the *Boston Medical and Surgical Journal*. His text book, *Practical Hygiene* (1901), passed through many editions.

HARRIS, JOEL CHANDLER. An American author and journalist, famous throughout the English-speaking world as the creator of "Uncle Remus," died at his home in Atlanta, Ga., on July 3, 1908. He was born in Eatontown, Ga., on Dec. 8, 1848, and had a little schooling in the academy in that town, which he supplemented by eager and, even as a boy, appreciative reading of good literature. At this time, it is said, he enjoyed the Elizabethan writers, and relished the literary flavor of the *Vicar of Wakefield*. When he was twelve years old, he became a printer's apprentice in the office of *The Countryman*, a weekly paper published at Eatontown by Col. J. A. Turner. Harris soon began to write, and presently he had become a regular contributor to the paper of local news articles, essays, and verse. This matter, which was published sometimes anonymously and sometimes signed, revealed not only a natural and rapidly developing literary facility, but unusual deftness in the art of telling a story. Civil War conditions were not calculated to encourage literary effort in Georgia, and as Sherman's army approached Eatontown, Colonel Turner withdrew to a less

strenuous atmosphere, leaving young Harris in charge of his plantation, with the result that he saw and absorbed the significance of that relentless invasion, whereof he afterward recorded his impressions in his books *On the Wings of Occasions*, and *Tales of the Home Folks in Peace and War*.

After the war, Mr. Harris was employed successively on newspapers in Macon, New Orleans, Forsyth, and Savannah, as an editorial writer for the *Morning News* in the last named city. Driven from Savannah, (where he had been rapidly making a name for himself) by the epidemic of yellow fever in 1876, he removed to Atlanta, and joined the staff of the *Constitution*. For this newspaper, Sam W. Small, afterward an evangelist, had been writing a series of "Old Si" negro sketches, the publication of which was suddenly interrupted by the illness of Mr. Small. Capt. E. P. Howitt, the editor, suggested to Mr. Harris that he continue the feature. With many misgivings he consented to try, and the result of the trial was the appearance in the literary world of the delightful and inimitable "Uncle Remus."

For twenty-five years after the appearance of "Uncle Remus" in the literary world, Mr. Harris continued his daily "desk work" in the office of the *Constitution*, and produced his full share of the editorial matter for that paper, and it was not until within a few years before his death that he began gradually to withdraw from active daily journalism. In 1907 he established the *Uncle Remus Magazine*, subsequently consolidated with the *Home Magazine*. His principal volumes, in the order of their appearance, are as follows: *Uncle Remus; His Songs and His Sayings* (1880); *Nights with Uncle Remus* (1881); *Life of Henry W. Grady, Including His Writings and Speeches* (1890); *On the Plantation, a Story of a Georgia Boy's Adventures During the War* (1892); *Uncle Remus and His Friends* (1892); *Stories of Aaron* (1895); *Stories of Georgia* (1896); *Georgia, from the Invasion of De Soto to the Present Time* (1896); *Tales of the Home Folks in Peace and War* (1898); *On the Wing of Occasion; Being the Authorized Version of Certain Curious Episodes of the Late Civil War* (1900); *Gabriel Tolliver; a Story of Reconstruction* (1902); *The Tar Baby and Other Rhymes of Uncle Remus* (1904); *A Little Union Scout* (1904); *Told by Uncle Remus* (1905); and *Uncle Remus and Br'er Rabbit* (1907); and *The Bishop and the Boogerman* (1908).

HARVARD UNIVERSITY. An institute of higher learning at Cambridge, Mass., founded 1636. The attendance in 1907-08 was 5,075; in the fall of 1908, 4,915. In the Graduate School of Arts and Science, the Graduate School of Applied Science, the Divinity School and in the Summer School, there was an increase of attendance. Harvard College, the Scientific School, the Law School, the Medical School, and the Dental School showed a decrease. The Graduate School of Business Administration was established in the fall of 1908, opening with a membership of 58. The course of study covers two years, and offers work in accounting, commercial law, economic resources, industrial organization, banking and finance, transportation, insurance, and public business. The degree offered is Master in Business Administration. The Dean of the School is Professor Edwin F. Gay.

The Andover Theological Seminary became allied with the Harvard Divinity School, but retains its independence and separate corporate entity. The headquarters are at Cambridge. In accordance with the rules made for conferring the degree of A.B. with distinction, in June, 1908, 35 were conferred *cum laude* on a subject or related subjects; 25 *magna cum laude* on a subject or related subjects; 3 *summa cum laude* on a subject or related subjects. Among the gifts to the University may be mentioned the following: one amounting to \$300,000, to be used partly for traveling scholarships, partly for the library; a fund of \$25,000 for the building and endowment of the Dental School; \$175,000 to endow the Department of Biological Chemistry; \$50,000 to the Germanic Museum toward the erection of a building; property amounting to \$65,000 to the Weld Boat House. Among the scholarships and fellowships, \$12,000 to establish in the Medical School a Teaching Fellowship in the Hygiene of Mental Diseases; \$100,000 to establish two scholarships of \$250 each to be called the George Newhall Clark Scholarships. Professor Wm. M. Davis, of the Department of Geology and Geography, was chosen by the German government as Visiting Professor at the University of Berlin; Professor Kühnemann, lecturing on German literature, was Exchange Professor at Harvard. The Hyde Lectures during the year 1908-09 are given by M. Abel Le Franc. Professor A. C. Coolidge, of the Department of History, was representative at the Historical Congress at Saragossa, and at the Congress of Arts and Science at Santiago di Chile. The Shaler Memorial Expedition to South America, in memory of the late Professor N. S. Shaler, of the Department of Geology, was under the direction of Professor J. B. Woodworth, of the same department. The resignation of President Chas. W. Eliot (q. v.), to take effect May 19, 1909, was the chief event of the year. The endowment of the University in 1908 was \$20,272,346.90. The receipts in the year 1907-8, \$2,838,400.49.

HASKELL, CHARLES NATHANIEL. An American politician and governor of Oklahoma. He was chairman of the Committee on Resolutions and took a prominent part in the Democratic National Convention at Denver, in July, 1908. He later became treasurer of the National Committee, but resigned early in the campaign, after having been charged by William R. Hearst with attempting to bribe Attorney-General Monett, of Ohio, in 1899, in behalf of the Standard Oil Company. He became involved in a controversy with President Roosevelt, which was a feature of the presidential campaign of 1908. See **PRESIDENTIAL CAMPAIGN**. No convincing proof of the charge was ever given. He was born in Putnam county, Ohio, in 1860, and in 1881 was admitted to the bar. He was active in Democratic politics in Ohio for many years and also in railway construction work. He removed to Indian Territory in 1901, settling at Muskogee. He was the leading spirit in the adoption of the Oklahoma State Constitution in 1907, and was elected first Governor of the State in that year. See **PRESIDENTIAL CAMPAIGN**; **STANDARD OIL**.

HAWAII OR HAWAIIAN ISLANDS (formerly SANDWICH ISLANDS), A territory of the United States comprising a chain of islands in the Pacific Ocean, forming the extreme northern group of Polynesia. The capital is

Honolulu, on the Island of Oahu, 2,100 miles from San Francisco, 4,803 miles from Manila, and 3,850 miles from Salina Cruz, the Mexican Pacific terminus of the Tehuantepec Railway.

AREA AND POPULATION. The total area of the Hawaiian Islands is 8,449 square miles, and the area of the inhabited islands is as follows: Hawaii, 4015 square miles; Maui, 728 square miles; Kahulawe, 69; Molokai, 261; Lanai, 133; Oahu, 600; Kauai, 544; and Niihau, 97. The last official census of the islands was taken in 1900, when the total population was 154,000. Conditions since that time make it difficult to estimate the present population. It is probably 170,000, divided about as follows: Orientals, 95,000, including 72,000 Japanese, 18,000 Chinese, and 5,000 Koreans; Latins, 27,000, including 23,000 Portuguese, 2,000 Spanish and 2,000 Porto Ricans; Polynesians, practically all Hawaiians and part Hawaiians, 35,000; Teutons, practically all of the American, British, German and Norwegian descent, 12,000; others, 1,000.

AGRICULTURE. The chief industries of Hawaii are connected with agriculture, although the nature of the crops is such as to require much incidental manufacturing. The growing of sugar has received the greatest attention, and nowhere has science been applied more extensively to this industry. A beginning has been made in the scientific development of other agricultural products. See **AGRICULTURAL EXPERIMENT STATIONS: FORESTRY.**

The sugar industry is conducted mainly by forty-nine corporations and five private companies or individuals. Many independent planters on a small scale raise cane and sell it to the corporations. The total capital invested in the sugar industry, exclusive of bond issues, was, in 1908, \$70,913,797. The total yield in 1908 was 529,123 long tons, as against 440,017 long tons in 1907. The value of the crop of 1908 was more than \$40,000,000. The total area devoted to the culture of sugar is about 213,000 acres, of which about one-half is irrigated. About 45,000 laborers are employed on the sugar plantations, of which Japanese numbered over 30,000, and the total Asiatics, 36,987.

Among other minor agricultural industries is the production of rice, which is carried on largely by the Chinese upon land leased at rentals of from \$10 to \$50 per annum per acre. About 11,000 acres are under cultivation. The annual product is valued at about \$2,500,000. Almost

the entire crop is consumed in the Territory. The rice industry has suffered much in late years in competition with rice grown in Texas and other parts of the United States, and importations of Japanese rice, which is preferred by the Japanese to the rice grown in the Territory.

The coffee industry, which at one time promised to be of considerable importance, has fallen largely into the hands of the Japanese on account of low prices and the absence of protective duties. The output is mainly exported and exports for 1908 were valued at \$174,216,000. About 4,500 acres are devoted to coffee growing.

The pineapple industry is assuming large proportions and large quantities are exported to the United States. The estimate for the year ending May 31, 1909, is an exportation of 350,000 to 400,000 cases. Bananas are also exported, and the cultivation of coconuts has been begun on an extensive scale. The total exports of fruits and nuts for 1908 were valued at \$803,376. Among the newer industries are rubber, sisal, and honey.

The supply of cattle on the Islands is abundant. There were in 1908 about 130,477 head of cattle, valued, at \$1,678,277, and about 99,535 sheep, valued at \$126,757. Most of the meat is consumed in the Islands. See **AGRICULTURAL EXPERIMENT STATIONS: HORTICULTURE; FORESTRY.**

MANUFACTURING. The principal manufactures of the Islands are the numerous large mills for the production of raw sugar on the plantations, each mill usually representing an investment of from \$300,000 to \$1,000,000. The pineapple industry has an investment of about \$280,000 in nine canneries. There are a number of small coffee mills and rice mills. There are also fertilizer works, wineries, a wire bed factory, soap factory, brewery, and a tannery. The Japanese have recently established several manufacturing factories. The principal manufactory outside of the sugar mills is that of the Honolulu Iron Works at Honolulu. This is one of the largest manufacturers of sugar machinery in the world.

COMMERCE. The year 1908 was the most notable in the commercial history of Hawaii. The aggregate imports and exports for the year ending June 30, 1908, amounted to \$62,224,179. Of these the exports were \$42,238,455, and the imports, \$19,985,724. The table given below shows the imports and exports by countries for the fiscal years 1907-8.

Imports and exports, by countries, fiscal years 1907 and 1908.

Countries	Imports		Exports	
	1907	1908	1907	1908
Australia.....	\$ 304,154	\$ 348,806	\$ 9,918	\$ 3 331
Other British Oceania.....	71,707	64,569	2,087	1,814
British India.....	658,244	689,457		
Canada.....	47,392	26,093	14,444	15,625
Chile.....	325,637	491,352		
France.....	14,210	31,479		260
Germany.....	348,667	310,134	340	10,025
Hongkong.....	296,975	324,107	3,274	8,881
Japan.....	1,557,441	1,874,670	148,674	541,554
United Kingdom.....	483,341	481,269	44,230	2,073
Other.....	43,941	30,463	6,947	14,077
Total foreign.....	4,151,709	4,682,399	229,914	597,640
United States.....	14,225,210	15,303,325	29,134,467	41,640,815
Grand total.....	\$18,376,919	\$19,985,724	\$29,364,381	\$42,238,455

The aggregate tonnage of vessels entered and cleared during the fiscal year 1908 was the largest in the history of the Islands. In that year 416 vessels, with a tonnage of 1,075,939, entered; and 412 vessels, with a tonnage of 1,069,325, cleared. Of these vessels 303 were American, 64 British, and 33 Japanese.

The principal exports to the United States in 1908 were as follows: Sugar, raw, 1,054,395,987 pounds; refined, 23,174,675 pounds; coffee, 1,310,432 pounds; rice, 3,038,723 pounds; hides, 928,599 pounds; wool, raw, 359,413 pounds; or a total of 1,083,207,829 pounds.

TRANSPORTATION. Improvement in transportation facilities is one of the greatest needs of the Islands. This includes the development of at least one good harbor in each of the principal islands and two on the largest island; the construction of belt lines of railway; the reduction of freight and passenger rates, and increase in the available accommodations for passengers and perishable goods.

The most extensive railroad on the Islands is on the Island of Oahu, operated by the Oahu Railway and Land Company. This is about ninety miles long. Other smaller railways are operated on the other islands. There is one street railroad, that of the Honolulu Rapid Transit and Land Company, in Honolulu, which has twenty-four miles of line and forty-five cars. It carries about 7,000,000 pay passengers annually.

FINANCE. Expenditures for the fiscal year 1908 exceeded the receipts by \$147,630, the former being \$2,517,378, and the latter, \$2,669,748, but since the actual net cash surplus at the beginning of the year was \$313,476, there still remained at the close of the year a net cash surplus of \$165,845. The principal sources of revenue were as follows: Licenses, \$206,374; real property tax, \$640,051; personal property tax, \$635,265; income tax, \$266,241; water works, \$141,898; land revenue, \$122,541. The bonded debt of the Islands at the close of the fiscal year 1908 was \$3,379,000. During the year the debt was increased by the issue of \$294,000 3½ per cent. bonds.

EDUCATION. Public schools of the Islands are under the Department of Public Instruction, consisting of a superintendent and six commissioners. Private schools are required to obtain permits of the Department and are subject in a measure to its supervision. The enrollment in the public schools in 1908 was 18,564, an increase of 1,426 for the year; in private schools, 4,881, a decrease of 439. The teachers in the public schools numbered 476, and in the private schools 218. There were 154 public schools and 54 private schools. The attendance at the public schools was about 90 per cent. of the enrollment. The largest increase was in Japanese pupils, the pupils of that nationality increasing from 1,352 in 1907 to 5,513 in 1908. The cost of the public schools in 1908 was \$467,198. There was established during the year a college of agriculture and mechanical arts at Honolulu. The first regular freshman class entered in September, 1908.

IMMIGRATION. The arrivals and departures of Japanese in the Islands varies greatly. In 1904-5 the departures were nearly double the arrivals, due to the Russo-Japanese war. Since that date, the arrivals have, on the whole, considerably exceeded the departures, although the

tendency in 1908 was the other way, owing to restrictions placed by the Japanese government on emigration to Hawaii. This tendency is offset to some extent by the restrictions against the emigration of Japanese from the Hawaiian Islands to the Pacific Coast. The continued decrease in the Chinese population due to departures and non-arrivals is offset in large measure by births, the school children having increased from 1,289 in 1900 to 2,596 in 1908. The Portuguese are increasing rapidly. The pupils of that nationality numbered in 1908 4,537. Hawaiians are slowly decreasing and part Hawaiians increasing. The total number of Japanese men, women and children on the Island of Oahu is about 20,000, of which perhaps 10,000 or 12,000 are adult males, although these are very rough estimates.

POLITICS AND GOVERNMENT. The present Governor and Secretary of the Territory took office on August 15, 1907. Changes followed in the heads of several departments. Near the close of the fiscal year the Secretary of the Interior made a two weeks' visit, during which he toured the four principal islands. Besides its many direct benefits, this visit inspired the Hawaiians with the new confidence that Hawaiian affairs would be looked after by the Department with interest and intelligence. The visits during and soon after the close of the fiscal year of the Pacific fleet, the Atlantic fleet, the special service squadron, and several cruisers, produced an excellent impression and did much to cultivate the national spirit. In general, the year 1908 was one of unusual harmony and prosperity in the Islands.

Much attention was given during the year to questions of population, labor, and immigration. Japanese labor has been much reduced through the action of the Japanese government. The Board of Immigration assisted in returning many Europeans who had gone from Hawaii to California and took steps to obtain immigrants from the mainland, with New York as the center of operation. Labor has not been as scarce as was anticipated from the decrease of Japanese immigration. Planters and others exhibit a constantly increasing disposition not only to cooperate with the government in the introduction of persons of the Latin and Anglo-Saxon races and the settlement of public lands by such persons, but also to devote their own lands for the same purpose.

A radical change has been inaugurated in the treatment of leprosy. Hitherto, emphasis has been laid upon segregation, especially of well developed cases. Hereafter it is proposed to lay upon it scientific study and treatment, especially of cases in their earlier stages, with a view to more effectual results in eradicating the disease and at the same time avoiding, as far as possible, distress to patients and their friends.

OFFICERS: EXECUTIVE. W. F. Frear, governor; E. A. Mott-Smith, secretary; C. R. Hemenway, attorney-general; A. J. Campbell, treasurer; J. W. Pratt, commissioner public lands; M. Campbell, superintendent public works; W. H. Babbitt, superintendent public instruction.

Delegate to Congress, J. K. Kalanianaʻole.

JUDICIARY. A. S. Hartwell, chief justice, Supreme Court; A. A. Wilder, associate justice, Supreme Court; S. M. Ballou, associate justice, Supreme Court.

HAY. Owing to the low price because of a large yield, hay in 1908 lost its relative place in total crop value, ranking this year under cotton, which never before occurred in American agricultural history. The total farm value of the year's crop on December 1 was \$635,423,000, as compared with \$743,507,000 the year before. The value per ton on December 1, in 1908 and 1907 was \$8.98 and \$11.68, respectively. The total production in 1908 never was exceeded, and the total value of the crop was surpassed but once, namely, in 1907. The quantity produced amounted to 70,798,000 tons, while in 1907 it was only 63,676,000 tons, but a difference of \$2.70 per ton in value in favor of the smaller yield gave it first place in value of total crop. The area devoted to hay in 1908 was 46,486,000 acres, and the average yield 1.52 tons per acre, while in 1907 the average was 44,028,000 acres, and the average yield per acre 1.45 tons. Among the States, Iowa ranked first in production, with 6,460,000 tons; New York second, with 5,717,000 tons; Illinois third, with 4,743,000 tons; Pennsylvania fourth, with 4,677,000 tons; Ohio fifth, with 4,590,000 tons, and Missouri sixth with 4,350,000 tons. The average yield per acre in the different States ranged from .92 of a ton in New Hampshire to 3.25 tons in Idaho. In Iowa the average yield was 1.70 tons and in New York 1.20 tons per acre. A large proportion of each year's hay crop is furnished by alfalfa and the quantity produced is increasing from year to year.

HEADLAM, WALTER GEORGE. An English Greek scholar, died on June 19, 1908. He was born on February 15, 1866, and was educated at King's College, Cambridge, where he graduated as Porson prizeman in 1887, having received seven Browne medals in 1885-87. In 1890 he became a fellow of King's College, and in 1906 he was a candidate for the Regius professorship of Greek at Cambridge. Headlam's particular field was the criticism of the newly discovered (1890) text of Herondas, and he also devoted much of his time to Greek tragedy. He translated into English prose *Æchylus's Supplices* (1900), the *Agamemnon* (1904), the *Choëphori* (1905), the *Eumenides* and the *Prometheus* (1908); and at his death he had in the press an edition of the *Fragments of Sophocles* to complete Jebb's edition of that poet. His *Book of Greek Verse* (1907) contains versions into Greek.

HEARST, WILLIAM RANDOLPH. See PRESIDENTIAL CAMPAIGN.

HEBERT, ANTOINE AUGUSTE ERNEST. A French historical painter, died on November 5, 1908. He was born at Grenoble in 1817. He studied law at the University of Paris, and later studied sculpture under d'Angers, but was finally persuaded by Delarouche to adopt painting as his life work. His first picture, "Tasso in Prison," exhibited at the Louvre in 1839, found a permanent home in the museum at Grenoble. He won the Prix de Rome in 1839, and went to Italy, where he remained until 1847. His "La Malaria," painted immediately after his return to France, was bought by the government for the Luxembourg. Several of his other paintings are famous, "The Daughters of Alvito," painted for the Paris Exposition of 1855, being especially notable. Besides his larger works, Hebert painted numerous portraits. He was professor of painting at the École des Beaux Arts.

HEDIN, SVEN ANDERS. See EXPLORATION.

HELIUM, LIQUEFACTION OF. See CHEMISTRY.

HEPBURN LAW. See RAILROADS.

HIBBERT, SIR JOHN TOMLINSON. A British politician, died on November 7, 1908. He was born in 1824, and was educated at Shrewsbury and at St. John's College, Cambridge. He was admitted to the bar in 1849, and entered Parliament in 1862 as Liberal member for Oldham. He served until 1874 and again from 1877 to 1886, and from 1892 to 1895. After serving in minor positions under various Liberal governments, he became parliamentary secretary of the Treasury in the Gladstone and Rosebery Ministries from 1892 to 1895.

HILL, DAVID JAYNE. An American diplomat, was confirmed by the Senate as Ambassador to Germany on April 2, 1908. It was rumored that objections were raised by the German Emperor to the appointment, because of a feeling that he was not sufficiently wealthy to uphold the lavish standard of entertainment which marked the tenure of his predecessor, Charlemagne Tower. But this was disavowed officially by the German Ambassador. See UNITED STATES, section *Diplomatic Service*. Mr. Hill was born in Plainfield, N. J., on June 10, 1850, and graduated at Bucknell University in 1874. He was president of Bucknell from 1879 to 1888, and of the University of Rochester from 1888 to 1896. He had made a special study of international law, was appointed Assistant Secretary of State in 1898, minister to Switzerland in 1903, and to the Netherlands in the same year. During his stay at The Hague he was a member of the Administrative Council of the Permanent Court of Arbitrators. He has written extensively on the history of diplomacy.

HISCOX, GARDNER DEXTER. An American engineer, died on Sept. 13, 1908. He was born in Elizabethtown, N. Y., in 1822, taught school for a while, and thereafter devoted himself to scientific and technical work. He made an especial study of mechanics, and particularly of motor vehicles, and published on such subjects: *Gas, Gasoline, and Oil Vapor Engines*, (1898); *Mechanical Movements, Powers, Devices and Appliances Used in Construction and Operative Machinery and the Mechanical Arts* (1899); *Compressed Air, its Production, Uses and Application as a Motive Power* (1901); *Horseless Vehicles, Automobiles, Motorcycles Operated by Steam, Hydro-carbon, Electric and Pneumatic Motors* (1901); and he edited *Henley's Twentieth Century Book of Receipts, Formulas and Processes* (1907).

HISGEN, THOMAS L. Presidential candidate of the Independence party in 1908. He was born at Petersburg, Ind., on Nov. 26, 1858, received but a meagre education, and, when sixteen years old, entered his father's clothing store at Albany, N. Y., as a clerk. Later, in conjunction with his brothers, he started a factory for the manufacture of axle grease, a business which the father had been interested in for some years, but which he had been unable successfully to establish. The brothers in time established a large and paying business, and thereby came into competition with the Standard Oil Company. A bitter fight followed the refusal of the brothers to sell their plant to the Standard, and resulted in the Hisgens going

into the oil business for themselves. In 1907 Mr. Hisgen was the candidate of the Independence League for Governor of Massachusetts, and polled 75,489 votes. This showing made him a prominent figure in the Independence party, an outgrowth of the Independence League, and on July 29, 1908, he was made the Presidential nominee of that party. See **PRESIDENTIAL CAMPAIGN**.

HISTORICAL ASSOCIATION, AMERICAN. Society for the promotion of historical studies, founded in 1884 and incorporated by Act of Congress in 1889. It had a membership in 1908 of about 2300. The twenty-fourth annual meeting of the Association was held in Washington, D. C., and Richmond, Va., on Dec. 28-31, 1908. The annual address was delivered by Hon. James Bryce, British Ambassador. The subject was, "The Relation of Political Science to History and to Practice." The following were among the important papers read at the meeting: "The Use of Census Materials in American Economic and Social History," James A. Hill; "The American Newspapers of the Eighteenth Century as Sources of History," William Nelson; "The Use of Newspapers for the History of the Period from 1850 to 1877," James Ford Rhodes; "The Use for Historical Purposes of the Newspapers for the Last Thirty Years," Talcott Williams; "Associated Press Dispatches as Materials for History," Melville E. Stone. Conferences were held on the following subjects: The Relation of Geography to History; The Influence of the Geography of the South Atlantic States on Their History; The History in Secondary Schools. Other papers were: "Normandy under William the Conqueror," Charles H. Haskins; "The Movement of European Expansion Led by Prince Henry of Portugal," Raymond Beasley; "Religious Toleration in Brandenburg-Prussia under the Great Elector," Oliver H. Richardson; "Chatham, 1808-1908," Charles W. Colby; "Grant's Conduct of the Wilderness Campaign," General Edward P. Alexander; "Lee's Conduct of the Wilderness Campaign," Col. William R. Livermore; "The Wilderness Campaign, from the Present Point of View," Major Eben Swift. The officers of the Association are as follows: President, George B. Adams; first vice-president, Albert Bushnell Hart; second vice-president, Frederick J. Turner; secretary, A. Howard Clark; corresponding secretary, Charles H. Haskins; treasurer, Clarence W. Bowen.

HITCHCOCK, FRANK HARRIS. An American politician and government official. He was born at Amherst, Ohio, on October 5, 1867, graduated at Harvard in 1891, and at the Columbian University Law School in 1894, and was admitted to the bar of the District of Columbia in 1894. Since his graduation from Harvard he has been almost continuously in the government service. He was chief of the division of foreign markets in the Department of Agriculture, chief clerk in the Department of Commerce and Labor, member of the Keep Commission, and first assistant postmaster-general, which position he resigned in 1908 to take charge of Mr. Taft's campaign for the Republican Presidential nomination. His effective work for Mr. Taft in the South and West contributed greatly to the latter's success in the Republican National Convention in June. In the following month Mr. Hitchcock was unanimously chosen chairman of

the Republican National Committee, and as such directed the campaign which resulted in Mr. Taft's election. Shortly after the election it was announced that Mr. Hitchcock would enter Mr. Taft's cabinet as Postmaster-General.

HOCKEY. The hockey season of 1908 was the most successful one in the history of the sport. The Saint Nicholas Skating Rink in New York City, as in previous years, was the scene of a large majority of the games played both by the teams belonging to the Amateur Hockey League and by the Intercollegiate Hockey League. The championship of the Amateur Hockey League was won by the Crescent Athletic Club, with eight games won and no games lost. The standing of the other teams in the league was: New York Athletic Club won 5 and lost 3. Saint Nicholas Hockey Club won 5 and lost 3. Hockey Club of New York won 2 and lost 6, and Wanderers' Hockey Club won 0 and lost 8. Since 1900 the Crescent Athletic Club has won the championship seven times, the Wanderers' Hockey Club once, and the Saint Nicholas Hockey Club once. The intercollegiate championship was won by Yale, which finished the season without defeat. Harvard, which, because of the excellent form shown in the early season games, was regarded a sure winner, ranked second, with three games won and one lost. Princeton, Dartmouth and Columbia, the three remaining teams in the league, each won one game and lost three. The intercollegiate championship of Canada was won by the University of Toronto team, which afterward visited the United States and defeated the champion Crescent Athletic Club team 12 goals to 3. The Victoria team of Montreal also made a trip to the United States, defeating the New York Athletic Club by a score of 8 to 6. The Stanley Cup in Canada was won by the Wanderers of Montreal.

HOG CHOLERA. See **VETERINARY MEDICINE**.

HOGS. See **STOCK RAISING**.

HOLLAND. See **NETHERLANDS**.

HONDURAS. A republic of Central America. Its area is estimated at 44,274 square miles. Its population, mostly Indians, numbered 500,136 at the end of 1905. The principal cities, with their estimated population, are: Tegucigalpa, the capital, 35,000; Juticalpa, 17,800; Nacaome, 12,000; La Esperanza, 11,500; Santa Rosa, 10,900; Choluteca, 10,800; San Pedro Sula, 10,000; Danli, 9,000.

EDUCATION. For primary instruction there are about 850 public schools, with 30,000 pupils. Nearly four-fifths of the population are illiterate. A normal school for women had 236 students in 1906; in the same year a normal school for men was opened with 201 students. There are several schools for secondary instruction, the one at Tegucigalpa being maintained by the central government, and others receiving aid from it. At Tegucigalpa there is a university with facilities of science, medicine, law, and political science. At Camayagua there is a school of law. In 1908 the government decided to establish a school of agriculture at Danli.

PRODUCTION. The mineral resources include gold, silver, platinum, copper, lead, zinc, nickel, tin, bismuth, antimony, iron, cinnabar, opals, petroleum, salt, alum, sulphur, and coal, but

their exploitation is awaiting the development of means of transportation. The New York and Honduras Rosario Company produced in 1907 923,538 ounces of silver and 11,950 ounces of gold, its total production of bullion from 1882 to 1907 having amounted to \$13,214,463. The chief agricultural product is bananas, of which 4,266,567 bunches were exported during the year ending July 30, 1907. The export of rubber from Puerto Cortés during 1906-7 amounted to 44,280 pounds, against 46,346 pounds during the preceding year. At least nine-tenths of the rubber obtained is of wild growth, and of the very best grade. A large number of trees were being ruined by continued tapping, while most of those that have recently been planted had not matured. Coffee, tobacco, sugar, maize, oranges, lemons, beans, indigo, sarsaparilla, rice, and wheat are also produced. The sugar is mostly used in the making of rum. Cattle breeding is carried on extensively, and there is a considerable export of cattle. The forests are rich in hardwoods, such as mahogany and cedar.

FOREIGN COMMERCE. During the year ending July 30, 1907, imports amounted to \$2,331,517, and exports \$2,012,410. The leading exports were: Bananas, \$930,916; mineral ores, \$444,333; live animals, \$136,016; bar silver, \$132,168; hides, \$66,314; cocoanuts, \$62,760; dye and cabinet woods, \$41,268; rubber, \$38,745. The bulk of the trade is with the United States, imports of which amounted to \$1,561,855, and exports to which, \$1,807,953. Imports from and exports to Great Britain were \$269,557 and \$9,612, respectively; Germany, \$209,089 and \$50,756. According to United States returns for the fiscal year 1907-8, imports from Honduras amounted to \$2,268,070, and exports to Honduras, \$1,768,995.

COMMUNICATIONS. There is a fifty-seven mile railway from Puerto Cortés to San Pedro Sula and Pimienta; in 1908 it was leased by the government for a period of twelve years, the lessee undertaking to reconstruct it and to build at least twenty-five miles of branch lines into the adjacent banana country. On the northern coast a line of thirty miles has been constructed by a private company from the port of Ceiba, providing an outlet for the fruit products of the Zacate valley. A good wagon and automobile road has been opened from Tegucigalpa to San Lorenzo, on the Pacific. The length of telegraph wire in 1908 was 2,842 miles.

FINANCE, ETC. For the fiscal year 1906-7 the revenues amounted to 2,828,386 silver pesos (each worth about 39.3 cents in July, 1908), and the expenditures, 4,023,350 pesos. The budget for 1908-9 balanced at 3,703,216 pesos silver. In July, 1907, the foreign debt amounted to \$105,195,885, including arrears of interest. The internal debt stood at 3,125,993 pesos at the end of 1906. The regular army numbers 500 men of all grades for which the annual budget carries an appropriation of about 1,200,000 pesos. The militia numbers about 20,000 men. In 1908 Dr. Miguel R. Davila was President.

HISTORY. In July, 1908, there was an insignificant uprising, which was easily put down. The insurgents were anxious to secure the leadership of ex-President Manuel Bonilla, who was deposed in 1907, but he repeatedly asserted that he had nothing to do with the attempted rising. In connection with these troubles the

American gunboat *Marietta* was sent to Belize. For an account of the cancellation of the exequaturs of all foreign consuls at Ceiba, and the negotiations resulting therefrom, see **UNITED STATES**, paragraphs on *Foreign Relations*. President Davila preferred charges to the Central American Court of Justice at Cartago, Costa Rica, against the governments of Guatemala and Salvador, for having organized and supported the revolt. In December the court gave a verdict in favor of the defendant countries. On March 2, 1908, President Davila decreed the organization of a Department of Agriculture. On March 24 a postal convention with Mexico was ratified, and on May 28 President Davila signed a treaty of friendship, commerce, and navigation with Mexico. In June the President referred for ratification to the National Congress a naturalization convention with the United States. See **CENTRAL AMERICA**; **INDUSTRIAL ARBITRATION**.

HONDURAS, BRITISH. See **BRITISH HONDURAS**.

HONGKONG. A British crown colony, off the southeast corner of China, consisting of the island of Hongkong, thirty square miles; the peninsula of Kowloon, ceded in 1866; and the Kowloon lease of 1898, 341 square miles. Total area, 389 square miles; total population (1907), 414,308, of whom 395,591 were Chinese. The white population included 18,777 military and naval persons. Victoria, the capital, had 185,000 inhabitants in 1907. In 1907 there were seventy-nine government-aided schools, with 5,924 pupils, besides a number of schools receiving no aid. The industries include sugar refineries, cement, brick, rope, matches, glass, soap, soda, ice, paper, vermilion, and other factories, engineering and shipbuilding works, etc. Hongkong is a free port, and there are no returns of the amount, origin, or destination of its foreign commerce. The shipping entered in 1907 aggregated 18,013,387 tons. There are twenty-two miles of railway and sixty-seven miles of telegraph line. The revenue in 1907 was 6,602,280 dollars; the expenditure, 5,757,293 dollars, and the public debt, £341,799. The military force stationed in 1908-9 numbered 4,256. The Governor in 1908 was Sir F. J. D. Lugard.

HISTORY. At the end of May forty-seven cases of the plague were reported. A resolution was passed by the House of Commons in May urging speedy measures to close the opium dens now existing in some of the Crown Colonies, especially in Hongkong, and in the course of the debate it was announced that the government had already decided to suppress all the Hongkong opium dens. Hongkong was visited by a severe typhoon on July 27, and much damage was done to both shipping and buildings. The loss of life was estimated at over 1,000 and a large number of European and native vessels were sunk, driven ashore, or otherwise damaged. The anti-Japanese boycott was joined by Chinese inhabitants of Hongkong and resulted in disturbances. On November 1, a mob wrecked a number of Chinese stores, for the reason, it was said, that the merchants showed a tendency to abandon the boycott. There were conflicts with the police and some of the rioters were wounded. Over 100 arrests were made and many of the agitators were punished. The movement was inspired from Canton, where anti-Japanese feeling was

still very strong. An organization had been formed in Canton and Hongkong to stir up the people against the Japanese and had posted warnings to those who continued to deal in Japanese goods. In December, the China Association protested to the government against the banishment of Chinese merchants and the government replied that no more banishments would be ordered if the merchants did not continue the boycott. Threats were made towards the end of the year of a boycott of British goods in revenge for the punishment of the anti-Japanese boycotters.

HOPKINS, HENRY. An American clergyman and president of Williams College, died on October 18, 1908. He was born in Williamstown, Mass., on November 30, 1837; graduated at Williams College in 1858; studied at Union Theological Seminary in 1859-60, and entered the congregational ministry in 1861. From 1861 until 1864 he served as army hospital chaplain at Alexandria, Va. He went to Westfield, Mass., in 1866 as pastor of the Second Congregational Church; four years later he moved to Kansas City, Mo., and held a pastorate there until 1902. From 1902 until the early part of 1908 he was president of Williams College. See **GARFIELD, HARRY AUGUSTUS**.

HOPS. The hop production of the United States for 1908 was estimated at 37,800,000 pounds, or about 16,000,000 pounds less than in 1907. The total farm value of this yield was about \$4,000,000. This yield and value had been exceeded many times. The prices in 1907-1908 ranged from 2 to 12 cents per pound, and this was so unsatisfactory to the growers that many of them, as reported from New York State, were abandoning their hop yards to turn their attention to dairying and other lines of farming. Low total yields were also secured this year in Russia and Germany. R. H. Rew pointed out in the *Mark Lane Express*, of London, that a comparison of data for the years 1885-7 and 1905-7 revealed a reduction in the world's acreage of 15,338 acres, or about 5 1-4 per cent. During these twenty years the area devoted to hops had increased in the United States, Austria-Hungary, Canada, Tasmania, and New Zealand, and had decreased in England, Belgium, France, Germany and Holland by more than 48,000 acres, or about 23 per cent. This writer further calls attention to the fact that the world's consumption of hops is slowly but certainly decreasing and suggests that the acreage be adjusted to requirements by an international movement among the growers. Germany, in 1908, grew 88,586 acres of hops, which produced 57,947,120 pounds, or an average of 650 pounds per acre. Since 1886 a gradual decrease in acreage had taken place and the acreage of 1908 was the smallest in thirty years. The heaviest crops this season were produced in Alsace-Lorraine, where the average yield reached 926 pounds per acre. In Russia an unfavorable season resulted in the poorest yield for a decade, the crop being only about 60 per cent. of the normal average. The total yield was 9,750,240 pounds, as compared with 12,639,200 pounds in 1907. England produced 47,068,360 pounds on 38,916 acres, the average yield being over 1,200 pounds per acre. Many brewers and hop experts in the United States were of the opinion that the quality of American hops might be improved by curing at lower

temperature, breeding disease-resistant types, selecting the best and most productive individuals, and keeping the varieties pure. Germans pointed out that hops were of a much higher brewing value when air-dried than when kiln-dried. Curing at high temperature not only reduces the weight, but also causes a loss in their most valuable constituents. Under favorable weather conditions hops spread out in thin layers in the open air will dry out and retain their color perfectly. English hop growers were urging the passage of a bill prohibiting the use of hop substitutes in the brewing of beer and providing for the marking of imported hops, the name of the owner, planter or grower, the country and the year in which grown, and the gross weight being required on the bags in which the hops were shipped. Importations must be made in bags.

HORSE-RACING. See **RACING**.

HORSES. See **STOCK RAISING**.

HORSTMANN, IGNATIUS FREDERICK. A Roman Catholic Bishop, of Cleveland, Ohio, died on May 13, 1908. He was born at Philadelphia on December 16, 1840, attended the Jesuit College at Glen Riddle, Pa., and later graduated at the American College in Rome, from which institution he received the degree of D.D. in 1866. He was ordained a priest in 1865, and from 1867 to 1877 taught in St. Charles Seminary, Philadelphia. In 1877 he became pastor of St. Mary's Church, Philadelphia, where he remained until his appointment as Chancellor of the archdiocese of Philadelphia in 1885. He was consecrated bishop of Cleveland in 1892. He was assistant editor of the *American Catholic Quarterly Review* in 1889-92 and edited Nampon's *Catholic Doctrine as Defined in the Council of Trent*.

HORTICULTURE. Doubtless the unsettled business conditions of the year 1908 hindered to some extent the growth and expansion of commercial horticulture in the United States. In the fruit industries, growers received less for their crops, although, with the exception of orchard fruits in the Pacific Coast region and the Southern peach crop, 1908 was not an overabundant fruit year. Packers, canners, and distributors experienced difficulty in disposing of their outputs in the large domestic markets. Many new small markets for future crops were developed, however, and there was a considerable increase in the exports of canned goods to England. The trans-Atlantic shipment of apples from the United States and Canada during the season of 1907-08 was 2,469,528 barrels and exceeded that of the three preceding seasons. The exports of domestic oranges and the home consumption of American lemons continued to increase. The short 1907 apple crop was finally figured at 29,000,000 barrels, and the crop for 1908 was believed to be several hundred barrels less. Georgia shipped over 4000 cars of peaches in 1908, and California shipped 10,700 cars of fresh deciduous fruits, other than apples and mixed lots, as compared with 6400 cars in 1907. During the season of 1907-08, California produced 27,500 cars of oranges and 5000 cars of lemons, and Florida about 4,000,000 boxes of oranges. The prune crop was the shortest and the apricot the heaviest for several years past. The total yield of grapes was lower than in 1907. California packed only 139,500 tons of dried fruits as against 153,100 tons in 1907.

The estimates for the total tomato, corn and pea packs for the season of 1908 were 11,479,000 cases, 6,779,000 cases and 5,577,000 cases, respectively.

The canned pineapple industry in Hawaii, though scarcely six years old, had already assumed commercial importance. The 1908 pack was estimated at 400,000 cases; to be shipped chiefly to the mainland of the United States. The total wine yield of the United States was estimated at 31,750,000 gallons, which is 11,741,554 gallons less than California's wine production for 1907. Many wine makers went into the grape juice business, to meet the growing demand for that product.

FRUIT MARKETING AND STORAGE. The influence of the recent investigations of Powell and associates of the Department of Agriculture, in which the decay of California oranges shipped East was found to be almost entirely due to improper methods of harvesting, packing, and shipping, was very much in evidence. Improvements in methods of handling labor, together with the readjustment and remodeling of many of the packing houses, resulted in a reduction of two-thirds of the losses due to decay. These losses formerly averaged about \$1,000,000 annually. In connection with these investigations it was found that when the fruit was cooled to 40 degrees F. or lower previous to shipment the temperature remained nearly constant if the cars were re-iced regularly in transit. It remained fairly constant in cool weather without additional icing after the cars left California, and in warm weather the cars needed re-icing only during the last half of the trip. Pre-cooling retarded decay and was recommended as an adjunct to careful handling. It was tried on a commercial scale and found to be a practical success financially. Several pre-cooling plants were to be erected during 1909. Investigations commenced with the Florida orange crop indicated that with careful methods of handling, the results secured in California could be duplicated. Likewise, investigations in the marketing and storage of California table grapes brought out the fact that decay did not take place unless the skin of the berry was broken, whether by insects, mechanical injuries or other causes. The grapes rotted least in transit and after arrival in the East when the fruit had been picked and packed with great care and was shipped quickly after packing. The storage and shipping qualities of the grapes were greatly improved by packing in cork dust. In a storage test of a number of varieties of table grapes it was found possible to hold them from sixty-five to one hundred days in excellent condition when packed in fine ground cork, where similar fruit packed in the ordinary commercial way could be held but from ten to twenty days. This work brought out the possibility of largely supplanting the importation of foreign grapes with the California crop.

The Hawaii Agricultural Station demonstrated by extensive shipping experiments that fresh pineapples can be readily shipped from Hawaii to any point within thirty days' direct communication with Honolulu, and that such fruits as avocados and papaias could be marketed in good condition in all of the large cities near the Pacific Coast. The growers took active steps toward the systematic development of a fresh fruit trade in the western part of the United States.

The State experiment stations were actively engaged in solving various horticultural problems, and many bulletins of practical value were issued during the year. Tests conducted at the New Hampshire Station for two seasons showed the importance of placing fancy apples, intended for long keeping, in cold storage as soon as possible after picking. It was found that the apples respire, thus losing weight, from four to six times as fast at summer temperatures as in cold storage, and from two to three times as fast in cool cellars as in cold storage.

The importance of finding out what a given wine grape variety will do as to color in any particular section, before making extensive plantings, was clearly brought out by the California Station, where it was found, on testing the color capabilities of numerous varieties of wine grapes from different sections of the State, that a variety which has abundant color in one locality may have almost none in another. The color of all varieties was less in quantity and less stable in character in the warmer climates and richer soils.

PEACH, APRICOT AND PRUNE KERNELS AS BY-PRODUCTS OF THE FRUIT INDUSTRY. Almond oil and bitter-almond oil are practically all produced in Europe and are often either represented by or diluted with oils derived from peach and apricot kernels. The Department of Agriculture found that the physical and chemical properties of fixed and volatile oils produced from peach, apricot and prune kernels corresponded in a striking degree to those of the almond oils. In view of the large supply of peach, apricot and, to a lesser extent, prune kernels annually available in this country, and which are largely waste products of the dried and canned fruit industries, the adulteration or synthetic production of almond oils was deemed unnecessary. The attention of fruit men and oil importers was directed to the possibility of the cheap domestic production of a class of oils which could be used for the same purposes as the almond oils. The adaptability of canneries, and other establishments already equipped with power, for producing these oils at a comparatively cheap cost was also pointed out.

PLANT BREEDING. Many new varieties of fruits, flowers and other plants were announced by commercial breeders. Scientific men, likewise, reported progress. As a result of several years' work, P. K. Blinn, of the Colorado Station, developed a rust-resistant cantaloupe which was successfully tried in various sections of the country. Hansen continued to get good results from his work in South Dakota. Some of the best of his third generation seedling sand cherries were producing fruits 1 inch in diameter and of good quality. Some promising new fruits have been originated by crossing the native Dakota plums and sand cherries with other stone fruits from Europe and Asia. Certain of these hybrids combine the hardiness and early fruiting character of the sand cherry with something of the size and quality of the choice cultivated fruits from abroad. There was an increasing interest everywhere in the attempt to verify Mendel's laws of hybridization and to seek out new truths connected with the growth of plants.

LITERATURE. A large proportion of the horticultural works which appeared in 1907 and 1908 were devoted to different phases of land-

scape gardening and floriculture. Of these may be mentioned: *The Art of Landscape Gardening*, by H. Repton (Boston and New York, 1907). This is the first of a series of classics in landscape architecture undertaken at the suggestion and with the coöperation of the American Society of Landscape Architects. The volume contains two of the best works of Humphrey Repton, an early English landscape gardener, as follows: "Sketches of Landscape Gardening," published in 1795, and "Theory and Practice of Landscape Gardening," published in 1803. Other prominent horticultural books are: Vol. 3 of *Gardens, Old and New*, edited by H. A. Tipping (London and New York, 1908); H. Maxwell and Miss M. G. W. Wilson, *Scottish Gardens* (New York and London, 1908); R. Farrar, *My Rock Garden* (London, 1907); H. B. Dorner, *Window Gardening* (Indianapolis, 1908); T. Baker, *Yard and Garden* (Indianapolis, 1908); H. S. Connard and H. Hus, *Water-lilies and How to Grow Them* (New York, 1907); J. H. Pemberton, *Roses; Their History, Development and Cultivation* (London and New York, 1908); P. L. de Vilmorin, *Manuel de Floriculture* (Paris, 1908); P. Hubert, *Ananas* (Paris, 1908); L. Degruilly, *L'olivier* (Montpellier, 1907). *Iowa Horticulture*, a monthly bulletin of plant life published by the Iowa State Horticultural Society, as well as two general horticultural monthlies, *Orchard and Farm* (San Francisco) and *Porto Rico Horticultural News* (San Juan, Porto Rico), appeared for the first time in 1908.

HOSLEY, HARRY HIBBARD. Commander U. S. Navy, who won fame as the commander of the towing expedition which took the dry-dock *Decey* from Chesapeake Bay to the Philippines, died on January 6, 1908. He graduated at the Naval Academy in 1875, became a lieutenant in 1889, lieutenant-commander in 1899, and commander in 1904. In December, 1905, he was placed in command of the dry-dock towing expedition. The expedition started on December 26, 1905, towing the great dry-dock, which has a displacement of 11,000 tons, and can lift a 20,000 ton battleship. The voyage was made by way of the Mediterranean, the Suez Canal and the Indian Ocean. The dock broke away six times during the voyage, but was captured each time without injury. On July 10 the unwieldy craft was moored safely at Olongapo, after a voyage of 13,080 miles, which consumed 196 days. Commander Hosley had been supervisor of New York harbor since 1904.

HOSMER, HARRIET GOODHUE. An American sculptor, died on February 21, 1908. She was born in Watertown, Mass., on October 9, 1830. Much rough outdoor life—hunting, riding and boating—made strong and robust her naturally frail physique, and she was able, after taking a short course in modeling in Boston, to study anatomy with her father, a physician, and afterward at the St. Louis Medical College. She went to Rome in 1852, and in 1853 became the pupil there of John Gibson (1790-1866), the English sculptor of "Tinted Venus" renown (the only pupil he ever accepted), the association resulting in a warm personal friendship between the two. Her studio in Rome had once been occupied by Antonio Canova (1757-1822), the great Italian sculptor; and while she lived in the Eternal City she was on friendly terms with such celebrities

as Nathaniel Hawthorne, Thorwaldsen, Flaxman, Thackeray, George Sand and George Eliot; while in Florence she was frequently the guest of the Brownings at Casa Guidi. In Gibson's studio she modeled her original heads, "Daphne" and "Medusa" (for Samuel Appleton, of Boston); "Beatrice Cenci" (1857), for the public library of Saint Louis, and "Ænone" (1855), her first life-size figure. Her figure of "Puck" (1855), an original and spirited conception, she copied several times, on orders, two of the buyers being the Prince of Wales and the Duke of Hamilton. Her most pretentious work was the colossal statue, "Zenobia, Queen of Palmyra, in Chains," completed in 1859; others were the statue of Thomas H. Benton, in Lafayette Park, Saint Louis; "Sleeping Faun," exhibited in Paris in 1867, and considered one of her best efforts; "Waking Faun"; a statue of the Queen of Naples as the "Heroine of Gaëta"; a statue of Isabella of Spain, and a monument to Abraham Lincoln, for the World's Fair at Chicago; a fountain in Central Park, New York City, and two others in private possession in England.

HOSPITALS. In spite of the financial stringency during 1908 no diminution in hospital building was observable.

In New York City the commission appointed by the mayor in 1906 to plan for the reorganization and extension of the hospital system presented its report, recommending that the hospital service be administered by a separate commission, which shall also have charge of the public ambulance service. The report recommends the extension of the sanatorium for tubercular patients at Otisville, new buildings for poorhouse, workhouse and nervous diseases on Blackwell's Island, early completion of the Sea View Hospital on Staten Island, expediting the work of the new Bellevue Hospital and many other needed improvements. One new building at Bellevue Hospital was opened during 1908, and another was almost ready for occupancy. A gift of \$500,000 was made by Mr. J. D. Rockefeller to the Rockefeller Institute for Medical Research for the purpose of erecting and furnishing a hospital to adjoin the present plant. The new building, though comparatively small, and not providing accommodation for many patients, was to contain elaborate provisions for the comfort of those received, and every effort was to be made to develop new and exact methods of treatment which may then be applied elsewhere on a larger scale. The plans filed included a seven-story brick building and a two-story edifice for isolation wards, connected by steel bridges. The estimated cost was \$400,000. A new tuberculosis hospital was to be erected on Blackwell's Island as an annex to the Metropolitan Hospital, to cost \$250,000. It will have a roof garden 291 feet long with a large solarium at either end. The new annex of the German Hospital, to be used as an isolation department, was opened on March 21. It cost \$30,000, most of which was given by Jacob Ruppert. The Mount Moriah Hospital containing 80 beds and a children's ward was opened on the East Side. The Presbyterian Hospital was given a million dollars by its president, James S. Kennedy, to be used in the construction of new buildings. Frederick Hewitt, of Owego, bequeathed \$2,000,000 to the New York Post-Graduate Hos-

pital and School. St. Luke's Hospital received \$20,000 from Maria L. Campbell as an endowment fund for beds for the exclusive use of physicians. A new wing to St. John's Hospital, Long Island City, was dedicated.

In Pennsylvania the new City Hospital, Scranton, was formally opened Feb. 19. The Montefiore Hospital, Pittsburg, was dedicated May 1. The Eastern Pennsylvania State Institution for the Feeble-Minded and Epileptics, at Spring City, was opened Nov. 16. Six of the 23 buildings contemplated were finished. The total cost is to be about \$1,000,000, and the institution is to occupy over 300 acres. In Baltimore the Sydenham Hospital for Infectious Diseases and the Municipal Hospital for Infectious Diseases were completed.

The Municipal Tuberculosis Hospital in Washington, D. C., was opened on June 27.

In Illinois there were completed, or under way, a new isolation hospital and the new University Hospital, in Chicago; hospital buildings at Spring Valley, Peoria and Evanston. A State Tuberculosis Hospital was erected at Iowa City, Ia. In Colorado, the National Jewish Hospital for Consumptives, at Denver, doubled its capacity, and new hospitals were built at Silverton and La Junta. The German Hospital, San Francisco, was dedicated June 27. A new general hospital was opened at Selkirk, Manitoba, at a cost of \$25,000.

The first municipal sanatorium for consumption in England was opened by the Lord Mayor of Birmingham. It is situated on the side of the Cotswold Hills, 3 miles from Cheltenham. The site is 800 feet above sea level and well sheltered. The great empty hospital at Carshalton, built for contagious diseases, was used for the sick children of the various London infirmaries. These children numbered 2,000, and were in the crowded wards of the workhouse infirmaries. Consul General Iddings reported that the Egyptian government would equip and administer in Cairo a hospital for foreign patients suffering from cholera.

HOUGH, ALFRED LACEY. An American soldier, died at Princeton, N. J., on April 28, 1908. He was born in Burlington County, N. J., on April 23, 1826, and at the beginning of the Civil War was engaged in business in Philadelphia. After serving as sergeant with the three months' volunteers, he was commissioned a captain of infantry in the regular army, serving in the West throughout the war. He was on the staff of General Thomas from 1863 until the end of the war, and until that officer's death in 1870. He became major in 1874, lieutenant-colonel in 1882, colonel in 1888, and retired with that rank in 1890. He saw active service in the Sioux war of 1876-77 and the Ute outbreak in 1879. In 1904 he was made brigadier-general on the retired list for Civil War service.

HOUSTON, DAVID F. An American educator, appointed president of Washington University, St. Louis, Mo., in 1908. He was born in Monroe, N. C., on Feb. 17, 1866, and graduated at South Carolina College in 1887. The following year he became superintendent of schools at Spartanburg, S. C., where he remained until 1891, when he went to Harvard, engaging in graduate study until 1894. From 1894 until 1902 he was at the University of Texas, where he was successively adjunct professor, professor of political science, and dean of the faculty. He was

president of the Texas Agricultural and Mechanical College in 1902-05, when he became president of the University of Texas, which position he held when called to St. Louis.

HOWARD, (GEORGE) BRONSON. An American playwright, died on August 4, 1908. He was born in Detroit, on October 7, 1842. Forced by weak eyesight to discontinue his college course at Yale, he went to New York in 1868 and began newspaper work. During the next four years he was with the *Evening Mail*, the *Tribune* and the *Evening Post*. His first play, *Saratoga*, was produced by Augustin Daly, in 1870, and had a run—extraordinary in those times—of 101 nights. Thenceforward, his career as a playwright was almost uniformly successful. The most notable of his subsequent productions were: *The Banker's Daughter* (1878); *Old Love Letters* (1878); *Young Mrs. Winthrop* (1882); *One of Our Girls* (1885); *The Henrietta* (1887); *Shenandoah* (1889); and *Aristocracy* (1892). The last named is generally considered his best work. In 1899 he wrote *Peter Stuyvesant*, in collaboration with Brander Matthews. Although not a great dramatist—his plays are anecdotal rather than dramatic—he was one of America's best and most successful playwrights. He was particularly clever at writing parts to fit the individual peculiarities of those who played them, and many well-known American actors owe their first successes to him.

HOWARD, JOSEPH, JR. An American newspaper man, died on March 31, 1908. He was born in Brooklyn, N. Y., on June 3, 1833, and graduated at the Rensselaer Polytechnic Institute in 1857 as a civil engineer, but soon afterward became a member of the staff of the *New York Times*. As correspondent for the *Times* he accompanied the Prince of Wales during his tour in America (1860), and was at the front in the first stages of the Civil War. While a member of the staff of the *Brooklyn Eagle* he was sentenced to serve fourteen weeks in prison at Fort Lafayette for publishing a "bogus" presidential proclamation calling for 400,000 troops. He was owner and editor of the *New York Star* in 1868-76, when he became a member of the staff of the *New York Herald*, and in later years he supplied letters from New York for various out-of-town papers. In 1905 he was a witness in the New York insurance investigation, and testified that in six years he had received \$19,125 from the Mutual Life Insurance Company for matter supplied to newspapers.

HUBSCHMANN, JOHANN HEINRICH. A German philologist, died on Jan. 21, 1908. He was born in Erfurt, on July 1, 1848; was educated at Jena, Tübingen, Leipzig and Munich, and in 1875 became *privat docent* at Leipzig. In 1876 he became professor of Iranian languages at Leipzig, and in 1877 professor of comparative linguistics at Strassburg. His publications include *Armenische Studien* (1883); *Das indogermanische Vokal-system* (1885); *Etymologie und Lautlehre der ossetischen Sprache* (1887); *Armenische Grammatik* (1895 sq.).

HUGHES, CHARLES EVANS. Governor of New York. See NEW YORK and PRESIDENTIAL CAMPAIGN.

HUNTON, EPPA. An American Confederate soldier and politician, died in Richmond, Va., on Oct. 11, 1908. He was born in Fauquier

County, Va., on September 23, 1822; educated himself for the law and for several years before the war was prosecuting attorney for King William County, Va. He was a member of the Secession Convention of Virginia in 1861, became a colonel and later brigadier-general in the Confederate Army and fought throughout the war. He was a member of Congress from 1873 to 1881, and United States Senator from 1892 to 1895. He was a member of the Electoral Commission which decided the Hayes-Tilden disputed election in 1877.

HUTCHINSON, JOHN WALLACE. An American singer, the last of the famous "Hutchinson Family," died on Oct. 29, 1908, at Lynn, Mass. He was born in Milford, N. H., on January 4, 1821, the thirteenth of the sixteen children of Jesse and Mary (commonly called "Polly") Hutchinson, thirteen of whom grew up to manhood and womanhood. All of the family were singers. They made their first appearance in 1839, and by 1842 had become well known in New England through their concerts in which they sang abolition and temperance songs. In 1845-46 they gave a series of successful concerts in England, and they took an active and influential part in the Republican campaigns of 1856 and 1860. In January, 1862, they visited the camp of the Army of the Potomac, a pass having been issued to them by Simon Cameron, then Secretary of War. This pass was revoked on the order of General McClellan, but permission to continue the concerts was afterward renewed, at the instance of President Lincoln, to whom the family sang, at his request, in the Green Room of the White House. The singing career of the subject of this sketch extended over 60-odd years, during which he participated, it is said, in more than 11,000 concerts. He organized the American Temperance Union in 1866, and in 1855 founded the town of Hutchinson, Minn. He published *The Granite Songster* (1848), and *Story of the Hutchinsons* (Boston, 1896).

HYGIENE. Interest in subjects pertaining to public health and sanitation was never more intense than in 1908. Both Democratic and Republican platforms proposed the organization of all existing national public health agencies into a national bureau or department with or without a cabinet officer at its head, and both political parties committed themselves to advance legislation along sanitary lines. The suppression of the plague in San Francisco (see PLAGUE) and of yellow fever in New Orleans and Havana, the successful campaign against impure foods and dangerous drugs, the fight against tuberculosis, have both provoked and shown forth the popular interest in hygienic matters, and aroused full realization of the enormous economic losses due to inefficient sanitation. Ways and means were considered for the establishment of schools of sanitary science, and President Butler of Columbia University appointed a committee to report on a plan for such a school in connection with that institution. Dr. N. E. Ditmars, the chairman of this committee, in a preliminary report, urged the establishment of two courses of study, one leading to the degree of Public Health Officer, the other a course in the work of sanitary inspection. A movement for the diffusion of sanitary knowledge called the "Louisiana System of Hygienic Education" consists in the holding of

"Institutes of Hygiene," under the authority of the State Board of Health, before colleges, high schools and other like institutions. The aim is to secure "the perfect correlation of the clergy of all denominations, educators, scientists and the press, with the health service of the State in its educational efforts." The principles of this scheme have been adopted in France and Greece. Wainwright called renewed attention to the evils of bituminous coal smoke and showed that it interferes with the health of the community in several ways. 1. By leading to fog and rain; 2. By shutting out sunlight and depriving us of certain qualities of light which are of importance in producing changes in organic matter; 3. By depositing soot. A smoky atmosphere by its exclusion of light, its content of acid and irritating particles is harmful to the tissues of the eyes, air passages and lungs; it aggravates the sufferings of those afflicted with heart, lung, or nervous affections; lowers the tone of the general health; is a peril to the old; and decreases buoyancy of spirit. S. G. Dixon, Health Commissioner of Pennsylvania, believing that sewage infected water might be one means of disseminating tuberculosis in view of the fact that thousands of human beings are expectorating or excreting tuberculous matter, undertook the examination of samples of sewage from various sources in Philadelphia. Many specimens were found to contain the bacilli. The results of the work, while not conclusive, point to the possibility of infection in this way. See TUBERCULOSIS and SANITATION.

ICE AGE. See GEOLOGY.

ICE HOCKEY. See HOCKEY.

ICELAND. See DENMARK, *Colonies*.

ICE YACHTING. The principal contests of the ice yachting season of 1908 took place on the Shrewsbury River, N. J. The Commodore's Cup Race was won by the *Eagle*, which covered the course of 15 miles in 31 minutes 20 seconds, establishing a new record. In one leg of this race the *Clarel*, in a straightaway course, covered 1.2 miles in 31 seconds. The Price Brothers' Cup and the Pott's Cup races were both won by the *Drub*, whose best time for the 15 miles was 41 minutes 30 seconds.

IDAHO. One of the Western Division of the United States. Its extreme length from north to south along the western boundary is 495 miles, and the width varies from about 50 miles in the north to nearly 300 miles in the south. The area of the State is 84,313 square miles, which includes 534 square miles covered by lakes. According to the Federal estimate, the population in 1908 was 220,351. The largest cities are Boise, the capital, with an estimated population of about 20,000, and Pocatello, 3,500.

MINERAL PRODUCTION. The total value of the mineral products of Idaho in 1907 was \$21,300,612, a decrease from the figures of 1906, which were \$22,721,174. The most valuable mineral production of the State was lead, of which there were produced 112,569 short tons, valued at \$11,932,314, as compared with 117,117 tons in 1906, valued at \$13,351,338. Next in value of production ranks silver, of which there were produced in 1907 7,888,400 fine ounces, valued at \$5,206,300. The silver produced in 1906 was 9,018,815 fine ounces, valued at \$6,042,606. The gold produced in 1907 was 60,754

fine ounces, valued at \$1,255,900, while there were produced in 1906 55,547 fine ounces, valued at \$1,149,100. Copper showed an increase in production in 1907 over the figures of 1906. In the former year there were produced 9,707,299 pounds, valued at \$1,941,460, as compared with 8,578,046 pounds in 1906, valued at \$1,655,563. Other mineral productions of the State are lime, salt, silver, stone and zinc.

While depression was prevalent throughout the State in the early part of 1908, and metal prices were comparatively low during the entire year, the mining industry was in a progressive condition. This was shown rather by active development work, the building of new reduction plants and the proving of virgin territory, than by figures of production. The gold mining industry more than held its own, but the production of silver and lead showed decrease. Many new mines were developed and several additional smelters were built during the year. The Director of the Mint estimated the gold production of the State in 1908 at \$1,450,830, against \$1,255,900 in 1907, and the silver production at 6,289,585 fine ounces, against 7,888,400 fine ounces in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1908, according to the figures of the United States Department of Agriculture, were as follows: Corn, 174,000 bushels, valued at \$122,000, from 6,000 acres; winter wheat, 6,960,000 bushels, valued at \$5,150,000, from 232,000 acres; spring wheat, 3,937,000 bushels, valued at \$2,913,000, from 155,000 acres; oats, 5,588,000 bushels, valued at \$2,226,000, from 127,000 acres; barley, 2,132,000 bushels, valued at \$1,130,000, from 52,000 acres; rye, 40,000 bushels, valued at \$27,000, from 2,000 acres; potatoes, 1,950,000 bushels, valued at \$1,170,000, from 15,000 acres; hay, 1,410,000 tons, valued at \$10,011,000, from 443,000 acres. The production of wheat has increased steadily since 1900. Idaho is one of the few States producing beet sugar. The production in 1908 was estimated at 40,000 long tons from about 30,000 acres. The value of the hay crop was considerably increased in 1908 over the value of the crop for 1907, which was \$8,585,000. The average yield of hay in Idaho is the third largest in the United States. The number of farm animals on December 31, 1908, was as follows: Horses, 158,000; mules, 2,000; dairy cows, 76,000; other cattle, 347,000; sheep, 3,897,000; swine, 143,000. Since 1900 the number of dairy cows was increased about 12 per cent., while the total number of cattle has increased about 7 per cent. Idaho ranks third in the total production of wool, the amount in 1908 being estimated at 17,500,000 pounds, valued at \$2,945,250.

EDUCATION. Among the important educational measures passed at the last session of the Legislature were the following: A uniform text-book law; uniform eighth grade examination law; a strict compulsory education law; child labor law; the establishment of three State summer normal schools. A complete course of study and manual for the use of all schools of the State was prepared, based on a uniform series of books adopted for the State. The course of study for the grades articulates with that of the high schools and the State University. During 1908 a number of schools was organized under the consolidated plan. This

eliminated the one-room rural school. The movement toward a centralized school system in Idaho has taken a decided step toward progress. The three State summer normal schools have enabled over 600 teachers of the State to become better qualified for their work at a merely nominal expense. Lecturers of national reputation were secured for the season. The new compulsory education law caused a marked increase in the attendance.

FINANCE. The biennial report of the State Treasurer showed a balance on hand Oct. 1, 1906, of \$466,180.40; the receipts from Oct. 1, 1906, to Oct. 1, 1908, were \$4,664,324.56, and the disbursements for the same period were \$4,478,476.70. The balance at the close of business September 30, 1908, was \$652,028.22. The total bonded indebtedness of the State on the same date was \$1,364,000, an increase of \$285,000 during the preceding two years.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State are the Idaho Soldiers' Home at Boise City, which contains about 120 inmates; the Idaho State Insane Asylum, with about 250 inmates; the Northern Idaho Insane Asylum, at Clear Water; the Idaho Industrial Reform School in Fremont county, with about 70 inmates, and the Idaho State Penitentiary in Ada county, with about 220 inmates.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in Idaho in 1908. On January 4 President Roosevelt requested the resignation of Ernest G. Eagleson, Surveyor-General of Idaho, and on June 13 United States District Attorney Ruick, who in 1907 brought charges of corruption against Senator William E. Borah, was removed from office by the President. In the trial of Senator Borah the jury declared that it found no evidence to substantiate these charges.

CONVENTIONS AND ELECTIONS. The Republican State Convention met at Wallace on May 13. Resolutions were passed indorsing the administration of President Roosevelt and the delegates selected were instructed to vote for William H. Taft for President. James H. Brady was nominated candidate for Governor. The Democratic State Convention met at Twin Falls on June 3. A division over the Mormon question in the State resulted in two conventions, and two full delegations were elected to the Denver convention. The convention's officers sided with the Mormon faction, but the majority of the delegates, led by former Senator Dubois, made a strong contest for control. When they failed, they drew aside, organized and elected delegates. The other faction elected delegates, one from each of the seven judicial districts and five from the State at large. In the election of November 3 the State was carried for William H. Taft by about 16,000 plurality, the national vote being: Taft, 52,606; Bryan, 36,080; Chafin, 1,740; Debs, 6,243. The entire Republican State ticket was elected.

OTHER EVENTS. Harry Orchard, whose sensational confession of murder in 1907 resulted in the trial of Charles H. Moyer, George A. Pettibone and William D. Haywood, officials of the Western Federation of Miners, pleaded guilty on March 10. On March 18 he was sentenced to death by Judge Fremont Wood, who made at the same time a strong recommendation that the sentence be not carried out. On July 1 the State Board of Pardons commuted the

sentence to imprisonment for life. The crime to which Orchard pleaded guilty was the killing of former Governor Steunenberg by the explosion of a dynamite bomb at Caldwell, December 30, 1905. In the trials brought as a result of Orchard's confession, Haywood and Pettibone were acquitted and the case against Moyer was dismissed.

STATE OFFICERS: Governor, James H. Brady; Lieutenant-Governor, Lewis H. Sweetzer; Secretary of State, Robert Lansdon; Treasurer, Charles A. Hastings; Auditor, S. D. Taylor; Attorney-General, D. C. McDougal; Superintendent of Education, S. Belle Chamberlain; Inspector of Mines, to be appointed; Superintendent of Agriculture, to be appointed—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, James F. Ailshie, Rep.; Associate Justices, Isaac N. Sullivan, Rep.; George H. Stewart, Rep.; Clerk, I. W. Hart, Dem.

The State Legislature of 1909 is composed of 15 Republicans and 6 Democratic Fusionists in the Senate and 39 Republicans and 12 Democratic Fusionists in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

IDO. See INTERNATIONAL LANGUAGE.

IGNATIEFF, NIKOLAI PAVLOVITCH. A Russian diplomatist, died on July 4, 1908. He was born on January 29, 1832, in St. Petersburg; entered the diplomatic service in early life and had a long and distinguished career. He was commissioner to the Khan of Khiva in 1858, and from 1859 to 1864 ambassador to China, where he succeeded in negotiating the treaty fixing the present boundary between the two empires. He was ambassador to Turkey from 1864 to 1877, and had charge of the negotiations preceding the war of 1877-78 between Russia and Turkey, and in the negotiations which ended it by the Treaty of San Stefano. He was Minister of the Interior in 1881-82.

ILLINOIS. One of the North Central Division of the United States. Its total area is 58,339 square miles. According to Federal estimate, the population in 1908 was 5,617,709. The capital is Springfield.

MINERAL PRODUCTION. The rapidity with which the Illinois oil field developed was the most surprising feature of the world's petroleum industry in 1907. In 1905 the product amounted to only 181,084 barrels; in 1906 this increased to 4,307,050 barrels, and in 1907 it had increased nearly five-fold, or to 24,281,973 barrels. Petroleum is found in limestone as well as in sandstone lenses embedded in shales and the oils vary correspondingly in the percentage of sulphur which they contain. The value of the output in 1907 was \$16,432,947, as against \$3,274,818 in 1906, and \$116,561 in 1905. Illinois rose from the rank of ninth State in the production of petroleum in 1906 to the third State in 1907, being in that year surpassed only by the Oklahoma-Kansas field and by Pennsylvania. The total production of coal in Illinois in 1907 was 51,317,146 short tons, with a spot value of \$54,687,382. This was an increase of 9,837,042 short tons in quantity and of \$9,924,320 in value over the production of 1906, and again advanced Illinois to second place among the coal-producing States, a position it had held uninterruptedly since 1883,

when Illinois supplanted Ohio as second in rank among the coal-producing States, and up to 1906, when Illinois was supplanted by West Virginia. The increase in production in 1907 was due in large measure to a heavy demand for coal and also to the renewed activity in mining after the recovery from the effects of the suspension on April 1, 1906. During the suspension, practically all the important mines of the State were idle, and 49,792 men out of a total of 61,988 in the State were idle for an average of 58 days. Illinois contains more coal-producing counties than any other State in the Union. There were in 1907 52 counties which produced 1,000 tons or more. The number of men employed in the coal mines of the State in 1907 was 65,581. There were employed in the production of the coal 1,080 machines. The machine-mining product showed an increase of 3,548,982 short tons over that of 1906. In 1907 there were 172 men killed in the coal mines of the State. The quantity of coke produced in 1907 was 372,697 tons as against 268,693 tons in 1906. Illinois ranks tenth among the States in the production of coke, having risen from 23rd place in 1903 and 14th place in 1906. There were 309 coke ovens in the State in 1907, with 280 building. The value of the coke produced was \$1,737,464. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$145,768,464, as compared with a value of \$121,188,306 in 1906.

Statistics for the fiscal year ending June 30, 1908, compiled by the secretary of the Bureau of Labor Statistics, showed that the coal production of the State during the fiscal year amounted to 49,272,452 short tons, as compared with 47,798,621 short tons during the fiscal year 1907, and with 51,317,146 short tons for the calendar year 1907. It is not believed that the tonnage for the calendar year 1908 will show any material increase or decrease. The only notable labor trouble during the year was a shut-down which occurred in April and May, when the operators and the miners were attempting to reach an agreement.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 298,620,000 bushels, valued at \$170,213,000, from 9,450,000 acres; winter wheat, 30,212,000 bushels, valued at \$29,306,000, from 2,324,000 acres; oats, 94,300,000 bushels, valued at \$44,321,000, from 4,100,000 acres; barley, 855,000 bushels, valued at \$556,000, from 30,000 acres; rye, 1,214,000 bushels, valued at \$886,000, from 71,000 acres; buckwheat, 91,000 bushels, valued at \$82,000, from 5,000 acres; potatoes, 11,076,000 bushels, valued at \$9,193,000, from 156,000 acres; hay, 4,743,000 tons, valued at \$38,893,000, from 3,100,000 acres; tobacco, 1,132,500 pounds, valued at \$96,262, from 1,500 acres. In both acreage and production of corn, the State holds first rank. The wheat crop has showed a steady and rapid increase since 1902, although the production in 1908 showed a considerable falling off from 1907, which was 40,104,000 bushels. The potato crop also showed a decrease from the crop of 1907, which was 13,398,000 bushels. The production of hay, however, was materially increased over the crop of

1907, which was 3,730,000 tons. The tobacco crop also showed a substantial increase, the figures for 1907 being 880,000 tons. The number of farm animals in January, 1909, was as follows: Horses, 1,623,000; mules, 92,000; dairy cows, 1,220,000; other cattle, 2,056,000; sheep, 793,000; swine, 4,438,000. The State ranks first in the number of horses, second in the number of swine, and fourth in the number of dairy cows. The estimated value of the wool clip in 1908 was \$887,250.

MANUFACTURES. Illinois ranks third among the manufacturing States, being surpassed by New York and Pennsylvania. The progress in manufactures in recent years has been very great. The special census of 1905 included only industries carried on in factories, but a comparison with the census of 1900 on the same basis shows an increase of 33 per cent. in the amount of capital invested, 14 per cent. in the average number of wage-earners, and 25.8 per cent. in the value of products. The figures for 1905 were: Capital, \$975,844,700; wage-earners, 379,436; value of products, \$1,410,342,000. Of the wage-earners, 60,399 were women at least 16 years of age, and only 4,946 were children under 16.

EDUCATION. The school population of the State, according to the last biennial report of the State Superintendent, was 1,500,066 (ages 6 to 21). The total enrollment in the public schools in 1907-8 was 988,078, and the average daily attendance, 760,477. There were 429 graded schools and 613 ungraded schools. The former had an enrollment of 696,010, and the latter of 292,068. The total enrollment in the 479 high schools of the State was 56,576; public school teachers numbered 23,115 women and 5,411 men. The high school teachers numbered 2,305. The total expenditure for public schools in 1907-8 was \$32,227,605.06. The enrollment in the 943 private schools was 165,520, and the teachers employed were 4,919. The enrollment of the five State normal schools was 4,988. The last General Assembly authorized the appointment of an Education Commission to simplify and recodify the present school system, and after making a thorough study of other school systems to make such recommendations concerning new school legislation to the Forty-sixth General Assembly as the Commission deemed necessary.

FINANCE. The report of the State Treasurer for the biennium, Oct. 1, 1906, to Sept. 30, 1908, inclusive, shows that the total amount received during that period was \$14,697,077.73, while the total disbursements were \$16,332,679.71. There was a balance in the treasury Oct. 1, 1906, of \$4,990,041.32, leaving a balance in the treasury Oct. 1, 1908, of \$3,354,439.34. The principal of the bonded debt of the State in October, 1908, was \$17,500. The principal sources of revenue were taxes and the amounts received from county treasurers. The chief disbursements were for the State school fund, for the State game protection fund, and the State food commissioners' fund.

CHARITIES AND CORRECTIONS. There are seventeen State charitable institutions, two prisons, one at Joliet and one at Chester, and one reform school at Pontiac. The charitable institutions comprise six general hospitals for the insane, at Elgin, Kankakee, Bartonville, Watertown, Jacksonville, and Anna; one hospital for criminal insane at Menard, one school for feeble-

minded children at Lincoln, one school for delinquent boys at Geneva, one school for delinquent boys at St. Charles, one soldiers' and sailors' home at Quincy, one soldiers' orphans' home at Normal, one soldiers' widows' home at Wilmington, two institutions for the blind, one a school at Jacksonville, and the other an industrial home at Chicago, one charitable eye and ear infirmary at Chicago, and one school for the deaf at Jacksonville. The total inmate population of all these institutions is 17,921. The largest grouping is the insane, which has 9,985 patients, or 56 per cent. of the total State wards. Under a new law the insane in county almshouses are being removed to State institutions, but the figure 9,985 does not include the insane still in almshouses, who number about 2,100, most of them at the Cook County institution at Chicago. There are 100 almshouses in the State. The State institutions are managed by local boards of trustees appointed by the Governor.

POLITICS AND GOVERNMENT. After unsuccessful attempts made in 1907, the State Legislature passed in January, 1908, a direct primary election law, which was signed by Gov. Deneen on Feb. 29, and went into effect on July 1. (See **PRIMARY, DIRECT.**) For the result of the first elections held under this law in August, see paragraph *Conventions and Elections* below. The State Supreme Court in April handed down a decision declaring valid the local option law of the State. The liquor interests maintained that the law was in conflict with the local self-government of towns and cities or villages. The point at issue hinged upon the question of municipal or township supremacy. Coulterville, a village of Randolph county, decided for saloons at the recent election. The county, however, voted to be dry, and, according to the ruling of the Supreme Court, the county or township is the unit to be recognized by law. As a result of this ruling, 1,500 saloons in the State were forced to go out of business. For the results in the elections held under the local option law on April 7, see paragraph *Conventions and Elections* below. The Supreme Court of the United States, on March 16, sustained the convictions of the Armour, Swift, Morris and Cudahy packing companies for accepting rebates on packing house products, and of the Burlington Railroad Company for granting them. The ruling upheld the validity of the Elkins anti-rebate law. On Feb. 20, the Illinois Supreme Court declared that a labor union's "unfair list" was, in effect, a boycott and therefore illegal. The Court also declared "picketing" unlawful.

CHICAGO. In the early months of the year there was started a vigorous movement to enforce the laws providing for the closing of the saloons on Sunday. This law had been obsolete for thirty-five years. Mayor Busse refused to employ the police for this purpose, and prosecutions against offenders of the law were brought by the State's Attorney. The juries in all of a large number of cases could not agree. A test case was carried to the Supreme Court of Illinois, which had not rendered a decision in the matter up to the end of the year. An attempt by the advocates of the open saloon to have placed on the ballots at the municipal elections of April the question of whether saloons should be open or not, under the Public Policy Question Act, was defeated by a ruling of the State Su-

preme Court. The vote sought would have been only a declaration of public opinion and not binding on the public authorities for action. The results of the municipal election in Chicago will be found in the paragraph *Conventions and Elections* below.

On Jan. 18, John R. Walsh was convicted of misapplying the funds of national banks, and on March 16 he was sentenced to five years' imprisonment in the Federal prison at Leavenworth, Kansas. Enforcement of the Walsh sentence, however, was stayed by a supersedeas, issued by Judge P. S. Grosscup, permitting Walsh's attorneys to take the case before the United States Court of Appeals. A final decision in the case had not been made at the close of the year. On March 2, Lazarus Averbuch, a Russian Jew and an avowed anarchist, attempted to kill George M. Shippy, the Chief of Police. The would-be assassin was shot dead by Shippy after he had wounded the latter's son and coachman by stabbing them with a knife. An account of the meeting of the Republican and Socialist National Conventions in Chicago will be found in the article *PRESIDENTIAL CAMPAIGN*. Work was begun, towards the close of the year, on a new city hall, which, it is expected, will be completed by Dec. 1, 1910. On Jan. 28, fire destroyed several business buildings and caused a loss of over \$1,000,000, and on Aug. 3, property including grain elevators, freight sheds, cars and buildings was destroyed, causing a loss of \$1,500,000. Much progress was made during the year on the reconstruction of the street railways of the city under the traction-settlement ordinance, whereby the city receives 55 per cent. and the companies 45 per cent. of the net profits from operation of street cars.

CONVENTIONS AND ELECTIONS. Elections under the local option law were held in the townships of the State on April 7. Of the 1,295 townships voting, 1,053 were carried by the no-license vote in 84 counties, while the license vote was successful in 242 townships. As a result of this vote 35 of the 102 counties of the State were wholly without saloons after Dec. 7, and 64 were partly "dry." Among the cities carried by the no-license forces were Decatur, Rockford and Mattoon. Most of the large cities voting were carried for license. There was no vote on the saloon question in Chicago, Quincy, Peoria, and several other cities. The result of the election in Chicago, which was for local officials, was a substantial Republican victory. Twenty-three Republican aldermen were elected, as compared with 11 Democratic and 1 Independent Republican. The result insured a Republican majority of 17 in the City Council. In the second election held on April 21, the license forces were generally successful in the 60 or more towns voting. About 70 saloons were, however, voted out of existence. As a result of three local option elections 36 counties were made "dry." Primary elections for the nomination of candidates for Governor and for the United States Senate were held throughout the State on Aug. 8. The Republican candidates for Governor were Governor Charles S. Deneen, and Richard Yates, a former Governor. The Democratic candidates were Adlai E. Stevenson, Vice-President of the United States during the second Cleveland administration, and James Hamilton Lewis. Deneen was renominated over Yates by about 15,000 votes, and Stevenson

was nominated over Lewis by about 17,000 votes. Of the candidates for the Senate, Albert J. Hopkins, the outgoing Senator, received the largest number of votes, but had no plurality, and the contest will be decided by the State Legislature. His nearest competitor was George Edmund Foss. The working of the new primary law in general gave satisfaction.

The Republican State Convention for the selection of delegates to the National Convention met at Springfield on March 26. Resolutions were passed indorsing President Roosevelt's administration, and the recent legislation against trusts, combinations and monopolies. Revision of the tariff was urged in a strong resolution. The delegates chosen were instructed to vote for Joseph G. Cannon for President. The Democratic State Convention met at Springfield on April 23. Resolutions were adopted censuring the Republican State administration for extravagance, and denouncing "the usurpation of power by the President of the United States." The delegates chosen were instructed to vote for William J. Bryan for President.

As a result of factional disputes and issues local to the State, Illinois was generally regarded as one of the possibly "doubtful" States in the Presidential election, although its voting strength is normally predominantly Republican on national issues. The results were, therefore, looked forward to with great anxiety by the leaders of both parties. The vote contained surprises for both sides, for while Taft was given a plurality over Bryan of 179,122 votes (629,932—450,810) the Republican candidate for Governor, Deneen, was chosen over Stevenson by a plurality of only 23,164 votes (550,076—526,912). A recount of the votes was claimed by the Democrats on the plea that they elected Stevenson. This was one of the most remarkable examples of independent voting ever seen in this country. The voters of the State authorized an amendment to the law governing the State Canal Board, and an issue of \$20,000,000 bonds for a deep waterway along the Desplaines and Illinois rivers to connect Lake Michigan with the Mississippi river. Amendments to the general banking law were also adopted.

OTHER STATE EVENTS. An outbreak of remarkable violence began in Springfield on August 14, as the result of an alleged attack by a negro upon a white woman. An attempt was made to lynch the negro, but this was prevented by the police, who outwitted the mob and took the prisoner to Peoria. Infuriated at this action, the mob lynched another negro, and then made an unrestrained attack upon the "bad lands," the negro quarters of Springfield. Many houses were burned and the mob attacked every negro who appeared, hanging a second negro, an inoffensive old man. In addition to the two men killed and nearly 100 wounded, the Assistant County Treasurer, W. K. Bowe, was fatally shot by negroes and robbed of a considerable sum of money. The local authorities were unable to cope with the mob, and the militia were hurried to the city by the orders of Governor Deneen. It was necessary for the militia to fire several volleys at the rioters before order was restored. Nearly all the negroes in the city fled to other places on August 16th. On August 17th, Governor Deneen offered rewards of \$200 each for the arrest of the murderers of six men who were killed in the riots.

Mrs. Kate Howard, one of the leaders of the mob, killed herself by drinking poison when arrested on August 26th. A grand jury was convened immediately to investigate. Seventeen indictments were returned August 17th by this jury for complicity in the riots. Four policemen, members of the Springfield police force, were indicted, and the grand jury censured the department for cowardice and recommended its renovation. The total number of indictments returned by the grand jury was 100. The negro whose attempted lynching started the affair was proved to be innocent of the charge made against him.

The semi-centennial anniversary of the debate between Abraham Lincoln and Stephen A. Douglas on the slavery question was celebrated in Galesburg on October 7th. William H. Taft, Adlai E. Stevenson and Congressman Theodore E. Burton were among those who made addresses. A tablet was unveiled to mark the site where the debate took place. Similar celebrations were held at Alton, Ottawa, Quincy, Freeport, Jonesboro and Charleston, where Lincoln and Douglas debated.

LEGISLATION. With the exception of the primary election law noted above, and which is described in the article **DIRECT PRIMARIES**, there was little notable legislation passed at the session of 1908. A resolution was passed for a Forest Preserve District Commission to investigate and report in regard to the creation of forest preserve districts, and to recommend legislation in regard to it.

STATE OFFICERS. Governor, Chas. S. Deneen; Lieutenant-Governor, L. Y. Sherman; Secretary of State, James A. Rose; Treasurer, Andrew Russell; Auditor, J. S. McCullough; Attorney-General, W. H. Stead; Adjutant-General, to be named; Superintendent of Insurance, to be named; Superintendent of Public Instruction, Francis G. Blair—all Republicans.

JUDICIARY—Supreme Court: Chief Justice Jas. H. Cartwright, Rep.; Associate Justices, Wm. M. Farmer, Dem.; John P. Hand, Rep.; Frank K. Dunn, Rep.; Guy C. Scott, Dem.; Alonzo K. Vickers, Rep.; Orrin N. Carter, Rep.; Clerk of the Court, C. Mamer, Rep.

The State Legislature of 1908 was composed of 38 Republicans and 13 Democrats in the Senate, and 89 Republicans and 64 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES**, under the section *Congress*.

ILLINOIS, UNIVERSITY OF. An institution of higher learning at Urbana and Champaign, Ill., founded in 1868. The attendance in the autumn of 1908 was 4,800. Of the 4,753 students in 1907-8, the undergraduate college registered 2,837; College of Medicine, 476; Pharmacy, 259; Law, 186; Dentistry, 76; Summer School (1908) 656; Academy, 377; Graduate School, 203. The requirements for admission to the three years' course in medicine have been fixed at three years of college work; to the four years' course, one year of college work. The financial condition of the University on June 30, 1908, indicated an income of \$1,408,762.51 for the preceding year. Of this \$1,006,945 came from the State; \$53,864.38 from the United States government; \$119,348.04 from fees; \$31,943.39 from interest on the endowment. Of this sum, \$298,650.50 was paid for instruction in all subjects except agriculture, medicine, and pharmacy; \$194,436 was expended on

equipment. The endowment of the University in 1908 was \$641,477.53. There are 115,000 volumes in the library. The President is Dr. Edmund J. James.

IMMIGRATION AND EMIGRATION.

Owing to the industrial depression following the financial crisis of October, 1907, there was a very decided check to the remarkable influx of immigrants into the United States, which had continued in an ever increasing stream for a decade. The break in American prosperity and the increase in unemployment did not become known soon enough to show any effect in the tide of immigrants until December, 1907, but by January the full effect of the changed economic conditions was apparent in the movement of aliens. This effect appeared not only in a decided fall in the number of immigrants but also in a remarkable exodus of resident aliens to European lands. The number of immigrant aliens by months for the fiscal year 1908 were as follows: July, 97,132; August, 98,825; September, 98,694; October, 111,513; November, 117,476; December, 66,574; January, 27,220; February, 23,381; March, 32,517; April, 41,274; May, 36,317; June, 31,947. The total was 782,870 or 502,479 fewer than for the fiscal year 1907. This total was smaller than for any year after and including 1903, but larger than for any preceding year except 1882. These figures include only those classed as immigrant aliens, that is, those who intend to reside here permanently. In addition there were 141,825 aliens arriving during the fiscal year who were classed as non-immigrant, that is, they were either alien residents of the United States returning from a trip abroad, or foreigners residing abroad but making a temporary trip to this country. The total number of aliens admitted during the fiscal year was therefore 924,695. Of these 72.8 per cent. arrived during the last six months of 1907 and only 27.2 per cent. during the first six months of 1908. The months following June, 1908, showed very slight, if any, increase in the number of immigrant aliens. The numbers were as follows: July, 27,570; August, 27,782; September, 38,238; October, 40,994; November, 37,076, and December, 46,003. As a bit of striking evidence of the decline in immigration in 1908 as compared with 1907, one may compare the figures for the various quarters of the calendar years. For the first quarter the number of immigrant aliens in 1907 and 1908 were respectively 259,076 and 82,018; for the second quarter 484,876 and 109,538; third quarter, 294,651 and 93,590; and fourth quarter, 295,563 and 124,073. The total for the calendar year 1907 was 1,334,166 and for 1908, 410,219.

Of the immigrant aliens admitted during the fiscal year 1908 (that is, 782,870), 506,912 were males and 275,958 were females. Classified by age, there were 630,671 or fully 80 per cent. between the ages of 14 and 44; 112,148 or more than 14 per cent. were under 14 years of age. Of those 14 years of age or over 172,293, or 26 per cent., could neither read nor write, while 2310 could read but could not write. These newcomers showed to immigration officials a total of \$17,794,226, an average of \$23 each. This was believed to be less than one-half the amount of money actually brought in. The greatest quantity of money was shown by Italians, Germans, English and Hebrews.

There were debarred during the year 10,902, as compared with 13,064 in 1907. Of those rejected 2608 were debarred on account of trachoma, 4571 as likely to become public charges, 1932 as contract laborers, 370 for mental defects, and 311 for moral reasons. There were also 2069 aliens already in the country who were deported for illegal residence. Of the immigrants 75 per cent. entered at the port of New York, 7.5 per cent. through Canada, 5.3 per cent. through Boston, 4 per cent. through Philadelphia, and 2.2 per cent. through Baltimore. The following table from the Report of the Commissioner-General of Immigration shows the immigrants classified by country of last permanent residence and the increase or decrease as compared with 1907:

	1908	Increase (+) or decrease (-)
Austria-Hungary	168,509	-169,943
Belgium	4,162	- 2,234
Bulgaria, Servia, and Montenegro	10,827	- 532
Denmark	4,954	- 2,289
France, including Corsica	8,788	- 943
German Empire	32,309	- 5,498
Greece	21,489	-15,061
Italy, Sicily, and Sardinia	128,503	-157,228
Netherlands	5,946	- 691
Norway	12,412	- 9,721
Portugal	7,307	- 2,301
Roumania	5,228	+ 844
Russian Empire and Finland	156,711	-102,232
Spain	3,899	- 1,885
Sweden	12,809	- 7,780
Switzerland	3,281	- 467
Turkey in Europe	11,290	- 9,477
United Kingdom:		
England	47,031	- 9,606
Ireland	30,556	- 3,974
Scotland	13,506	- 6,234
Wales	2,287	- 373
Other Europe	97	- 10
Total Europe	691,901	-507,665
China	1,397	+ 436
Japan	15,803	-14,423
India	1,040	+ 142
Turkey in Asia	9,753	+ 1,700
Other Asia	372	- 14
Total Asia	28,365	- 12,159
Africa	1,411	- 75
Australia, Tasmania, and New Zealand	1,098	- 849
Pacific islands, not specified	81	+ 39
British North America	38,510	+18,592
British Honduras	42	+ 7
Other Central America	1,175	+ 240
Mexico	6,067	+ 4,661
South America	2,315	- 464
West Indies	11,888	- 4,801
Other countries	17	- 5
Grand total	782,870	-502,479

This table indicates that in the fiscal year 1908 21.6 per cent. of the immigrant aliens came from Austria-Hungary, 20 per cent. from Russia, 16.4 from Italy and 12 per cent. from the United Kingdom. While the total immigration was 39 per cent. less than in 1907, that from Austria-Hungary was approximately 50 per cent., that from Italy 55 per cent., and that from Russia 39 per cent. less than in the year

1907. That from Greece and Turkey also declined very decidedly. A classification of the immigrants by destination showed that 32.8 per cent. of them were bound for New York, 14.3 per cent. for Pennsylvania, about 7.3 per cent. to Illinois and to Massachusetts, and 4.0 per cent. to New Jersey and to Ohio. While with most of the immigrants country of last permanent residence indicates also the race or people, this is not always the case. Thus in 1908 there were 103,387 Hebrews, 68,105 Poles, 6746 Finns, 13,720 Lithuanians, 24,378 Magyars and 10,164 Bohemians and Czechs. The occupations of the majority of the immigrants is shown as follows: farm laborers, 138,844; laborers, 146,051; servants, 89,942; skilled laborers and artisans, 123,640; professional persons, 11,078. In the case of 242,677, mostly women and children, no occupation was specified. Of the skilled workmen, 20,735 were tailors, 11,394 carpenters and joiners, 10,739 clerks and accountants, 7337 miners, 7600 shoemakers, and 5273 dressmakers. Teachers, clergy, engineers, actors and musicians made up the bulk of those classed as professional men.

The figures for immigration do not by any means indicate the net addition to population by this cause. The new immigration law in effect July 1, 1907, requires the registration of departing aliens. These are divided into two classes, namely, emigrant aliens, or those who have resided in the United States but intend to take up residence abroad, and non-emigrant aliens, including both those who were classed as non-immigrant aliens on arrival and those who were classed as immigrant aliens on arrival but have, after brief residence here, decided to locate permanently abroad. During the fiscal year 1908 the emigrant aliens numbered 395,073 and the non-emigrant aliens, 319,755, a total of 714,828. Subtracting this number from the total number of aliens admitted leaves a net immigration of 209,867, or 27 per cent. of those admitted. This low percentage of net immigration for 1908 compares with an estimated percentage of net immigration for 1907 of 78 per cent., for 1906 of 74 per cent. and of 68 per cent. for the decade 1899-1908. Moreover it should be noted that the surplus of immigration over emigration for the fiscal year 1908 was entirely due to the great tide of immigration of the first five months of the year. An excess of immigrants over emigrants during the months preceding December of 300,328 was replaced during the last seven months by an excess of emigrants of 90,461. The numbers of emigrants by months during the fiscal year were as follows: July, 46,198; August, 44,317; September, 43,734; October, 55,826; November, 94,440; December, 88,432; January, 60,233; February, 50,688; March, 43,506; April, 65,721; May, 61,251; June, 60,482. For the first months of the fiscal year 1908-9 the numbers were: July, 49,473; August, 45,713; September, 42,049, and October, 39,851. In the year ending October 31, 1908, the total inward alien movement was 655,263, and the total outward movement 701,839, giving a net emigration of 46,576. Beginning with December, 1907, the emigration exceeded the immigration every month until September, 1908, except March, when it was very slightly less. Beginning with September the immigration once more exceeded the emigration.

This very unusual departure of aliens was due primarily to the industrial depression, but was also connected with the uncertainty attending a presidential campaign. Besides those leaving for these reasons were the several hundred thousand who in recent years have annually departed for other reasons. Many return for the winter season or for festival occasions, while others, having acquired a competence, return to their native lands to spend their remaining years. In his 1908 report the Secretary of Commerce and Labor argued that this outward movement of aliens is of great value for the development of America's foreign trade, since those returning to their native lands take with them demand for American manufactures. Moreover they assist in the growth of better understanding between nations. The great influx of immigration, the Secretary stated, had transplanted new industries to the United States and had assisted materially in the development of those already here. The foreign laborer has performed the more menial tasks of a period of remarkable industrial development, permitting the native workmen to perform more remunerative labor. Moreover in spite of unprecedented immigration wages have not fallen but have steadily risen.

Asiatic immigration was 30 per cent. less in 1908 than in 1907. While that from China and India increased slightly and that from Turkey increased 21 per cent., that from Japan fell from 30,226 in 1907 to 15,603 in 1908. The total Japanese immigration, however, was 18,238, of whom slightly more than half were admitted to the mainland and the remainder to Hawaii. Of the 9544 admitted to the mainland only 3860 were classed as laborers. All of these laborers under the provisions of the new law were former residents, parents, wives or children of residents, or farmers already interested in a farming enterprise in this country. During the year 5718 Japanese departed from continental United States, of whom 2523 were laborers. The voluntary agreement by Japan to refuse passports to those of her citizens not desired as immigrants was effective in greatly reducing Japanese immigration. This agreement was made in December, 1907. Two-thirds of the Japanese immigrants to continental United States during the fiscal year 1908 came in before January 1. The Chinese emigrants numbered 3898, being about three times as numerous as the registered Chinese immigrants. There was more or less illegal entrance of both Japanese and Chinese.

The Immigration Commission of three Senators, three Representatives, and three experts appointed by the President as provided by the law of 1907, continued its study of immigration problems at home and abroad during the year, but had not submitted its report to Congress at the close of the year. The Commission made a most careful first-hand study of conditions in Greece, Italy and Austria-Hungary, with a view to ascertaining the desirability of immigration from those countries.

During the year steps were taken toward the improvement of practically all the immigrant stations. This was true at New Orleans, Galveston, Charleston, San Francisco, Philadelphia, and New York. The improvements at Ellis Island in New York harbor were such as to pro-

vide the most healthful and sanitary conditions that modern science can devise.

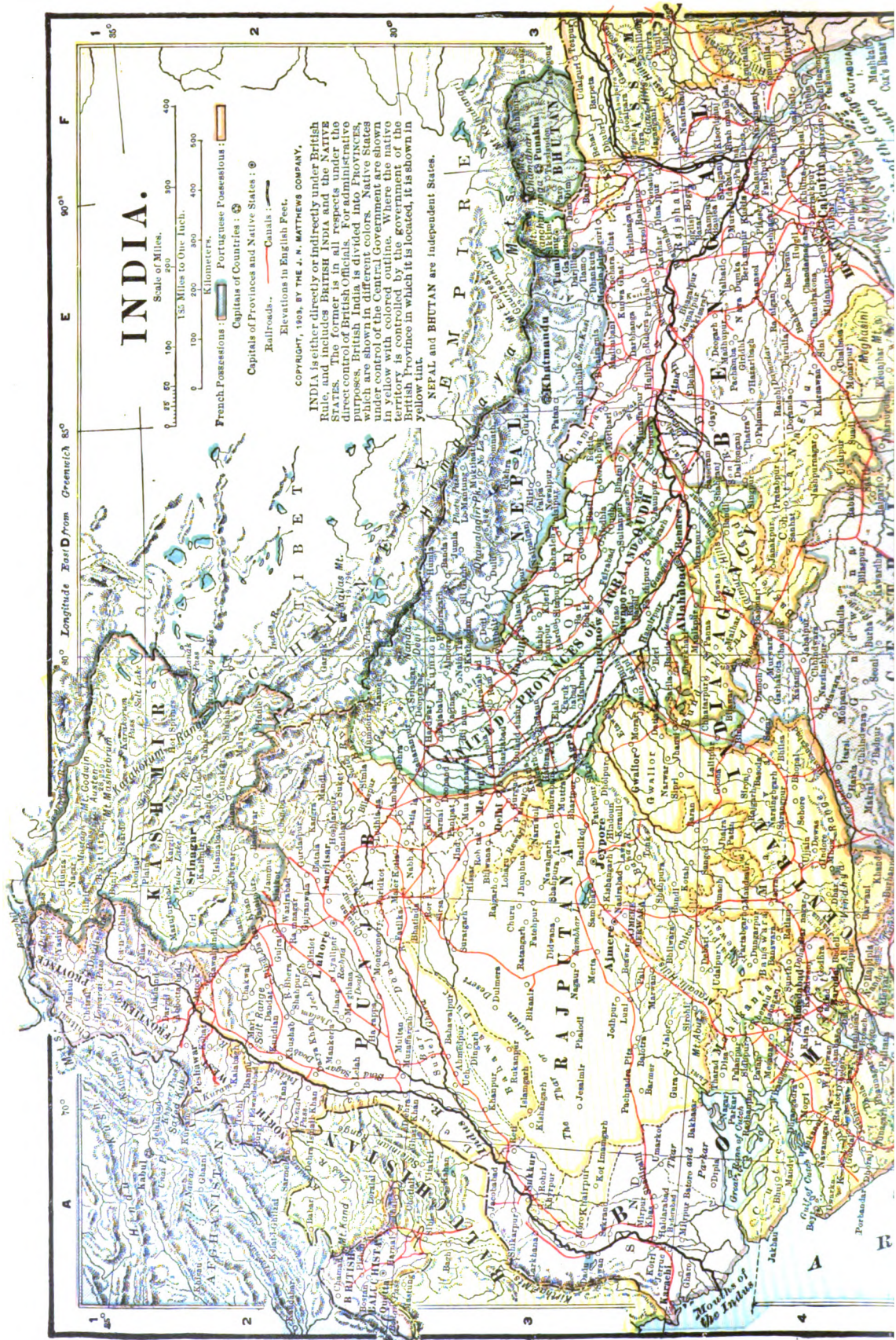
New legislation consisted of the Lodge bill, passed in December, 1908, which requires at least fourteen square feet for the berthing accommodations of each steerage passenger, except on the lowest passenger deck where the requirement is eighteen square feet. Moreover there must be provided at least three square feet additional for each passenger as smoking and recreation rooms; and at least five square feet for each steerage passenger on the open deck. Not only will this bill insure better hygienic conditions of travel for steerage passengers, but it may serve to check immigration at times of unusual influx. Thus taking twenty-five average steamships, which under the law of 1882 could transport 45,616 steerage passengers, it is found that under the new law they can transport only 32,503, a reduction of almost 30 per cent.

The New York Legislature in 1908 provided for a commission to investigate the condition of resident aliens and the general subject of immigration in so far as it is a matter of State concern. In view of the fact that about one-third of the immigrant aliens find their home and labor in New York State, the Immigration Commission is expected to bring to light many interesting facts. It will study the treatment of the immigrant on his arrival by employment, information and relief bureaus, lodging houses and transportation companies.

The effect of the emigration upon Italy received considerable attention during the year. It was shown that in some sections, especially in Southern Italy, whole villages had been practically wiped out by movement to America. The result was a tendency toward degeneration in the population, and a disruption of economic activities. Furthermore such wholesale emigration has a tendency to cut off the large amounts of money sent from America to relatives. A pressing question in New York City was the large proportion of criminality among Italian immigrants, and means of reducing this undesirable class of arrivals by cooperation with the Italian police were under consideration during the year.

INCANDESCENT LAMPS. See **ELECTRIC LIGHTING.**

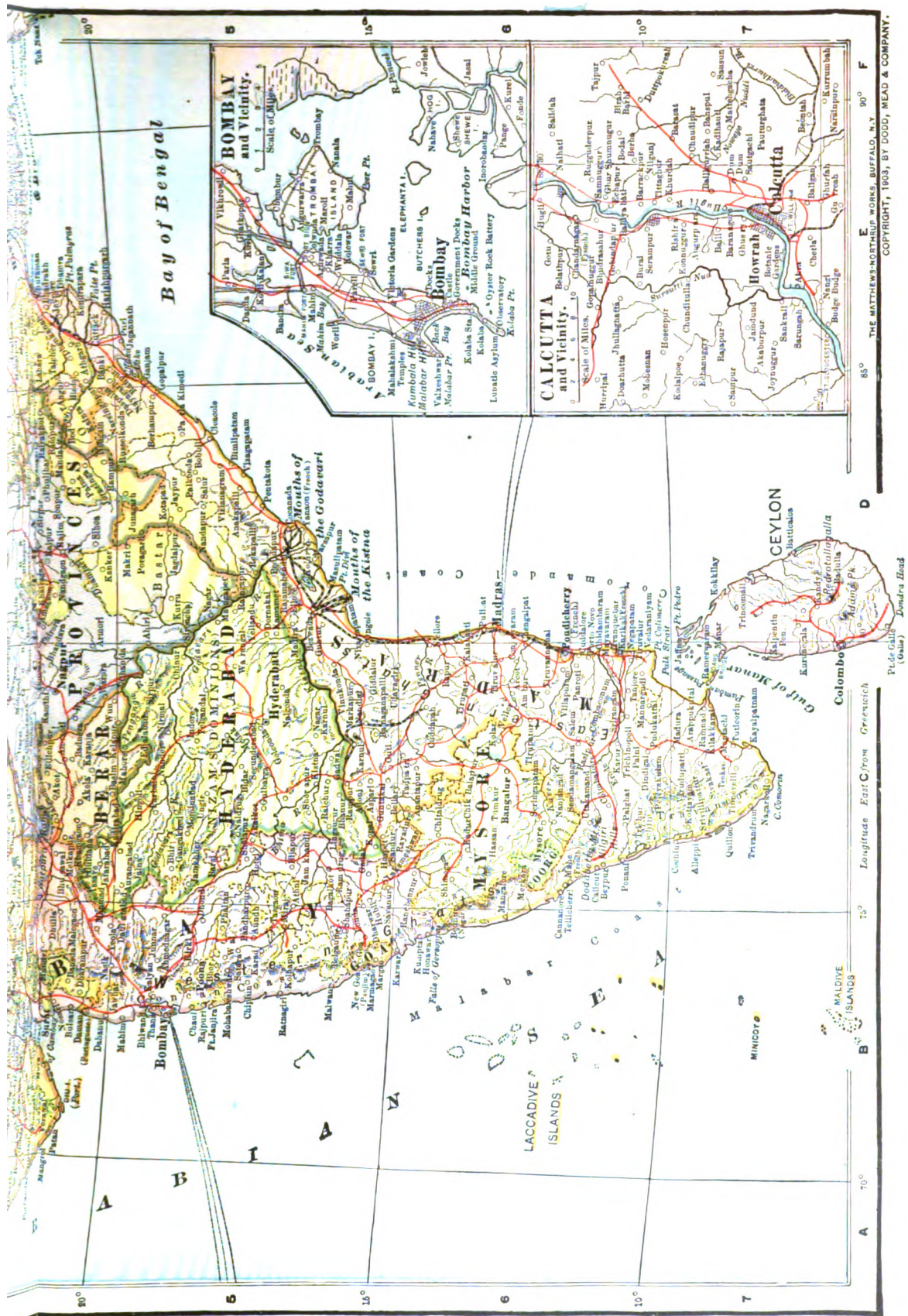
INDIA, BRITISH. The total area and population (1901) of British India are 1,773,168 square miles and 294,361,056, of which British Territory comprises 1,097,901 square miles, with 232,072,832 inhabitants, and Native States and Agencies 675,267 square miles, with 62,288,224 inhabitants. Of the total population in 1901, 149,951,824 were males and 144,409,232 females. The urban population numbered 29,361,056, and the rural, 265,116,836. According to religion, the population was divided as follows: Hindus, 207,050,557; Sikhs, 2,195,339; Jains, 1,334,148; Buddhists, 9,476,759; Parsis, 94,190; Mohammedans, 62,458,077; Christians, 2,923,241; Jews, 18,228; Animists, 8,584,148; others, 129,900. The principal cities, with their populations in 1901, are: Calcutta, 847,796, with suburbs, 1,106,738; Bombay, 776,006 (1905, 977,822); Madras, 509,346; Hyderabad, 448,466; Lucknow, 264,049; Rangoon, 234,881; Benares, 209,331; Delhi, 208,575; Lahore, 202,964; Cawnpore, 197,170; Agra, 188,022; Ahmedabad, 185,-



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INDIA is either directly or indirectly under British rule, and includes British India and the Native States. The latter are under the direct control of British Officials. For administrative purposes, British India is divided into Provinces, which are shown in different colors. Native States under control of the Central Government are shown in yellow tint. The Native States under the control of the Government of the British Province in which it is located, it is shown in yellow tint.

NEPAL and BHUTAN are independent States.



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889; Mandalay, 183,816; Allahabad, 172,032; Amritsar, 162,429; Jaipur, 160,167; Bangalore, 159,046; Howrah, 157,594; Poona, 153,320; Patna, 134,785; Bareilly, 131,208; Nagpur, 127,734; Srinagar, 122,618; Surat, 119,306; Meerut, 118,129; Karachi, 116,663; Madura, 105,984; Trichinopoly, 104,721; Baroda, 103,790.

The number of coolie emigrants embarked in 1907 from Indian ports to various British colonies under the laws regulating emigration was 21,003. In 1906 births and deaths were registered for a population of 223,208,181. The number of births was 8,438,123 (4,359,339 male and 4,078,784 female), and of deaths, 7,775,837 (4,014,331 male and 3,761,506 female). The ratio per 1000 of population was: For births, 37.80; for deaths, 34.83. The plague mortality in 1907 was 1,204,194; during the period 1896-1907, 5,921,160 (4,931,474 in British Territory and 989,686 in Native States).

EDUCATION. In 1901 the number of those able to read and write was 15,686,421 (1,125,231 in English), of whom 996,341 were females. The following table presents a summary of the educational institution in British Territory during the year 1906-7:

	Institutions		Scholars	
	For Males	For Females	Males	Females
Public Institutions—				
Art colleges.....	129	8	19,099	160
Professional colleges	43	3	6,137	113
Secondary schools.....	5,347	567	654,392	61,358
Primary schools....	102,992	9,992	3,444,811	495,895
Teachers' training schools	315	63	7,785	1,407
All other special schools	1,890	58	55,857	3,067
Total public institutions	110,716	10,691	4,188,061	562,000
Private Institutions—				
Advanced	3,700	11	60,310	1,173
Elementary	35,804	1,768	526,981	59,317
Total private institutions	39,504	1,779	587,291	60,490
Grand total.....	150,220	12,470	4,775,372	622,490

The total expenditure on education in British Territory in the year 1906-7, including provincial, local, and municipal expenditures, fees, subscriptions, endowments, etc., was £3,734,207. In 1906-7 there were published 744 newspapers, 973 periodicals, 1589 books in English or other European languages, and 8126 in Indian languages. The number of printing presses was 2400.

AGRICULTURE. According to the survey, the net area of British Territory, minus the area of feudatory and tributary states and the area for which no returns exist, was 583,744,368 acres in 1906-7. Of this total, 81,752,193 acres were under forest; 137,164,721 not available for cultivation; 106,698,446 cultivable waste other than fallow; and 39,933,488 fallow. The area sown with crops was 214,026,319 acres, of which 36,654,558 were irrigated. Food-grains covered 195,117,838 acres, of which rice took up 73,541,128; wheat, 25,137,982; barley, 7,700,110; jawar, 20,781,722; bajra, 15,033,742; ragi, 3,567,712; maize, 6,171,751; gram, 13,203,149; other grains and pulse, 29,890,542. Gardens, orchards, spices, etc., covered 7,274,340 acres; sugar, 2,623,874; coffee, 96,050; tea, 505,147; lin-

seed, 2,514,861; sesamum, 3,908,376; rape and mustard, 4,231,479; other oilseeds, 2,842,770 (total oilseeds, 13,965,315); cotton, 13,771,214; jute, 3,523,558; other fibres, 692,495; indigo, 448,594; opium, 614,915; tobacco, 1,009,210; fodder crops, 4,547,733.

The estimated yield in 1906-7, including the crops in certain of the Native States, was: Cleaned rice, 430,258,400 cwts.; wheat, 8,447,840 tons; coffee, 17,695,312 lbs.; tea, 240,849,894 lbs.; cotton, 4,908,000 bales; jute, 8,736,200 bales (400 lbs. each); linseed, 19,900 tons; rape and mustard, 1,060,900 tons; sesamum, 531,100 tons; cane sugar, 2,223,400 tons.

TEA. The bulk of Indian tea is grown in Assam (343,507 acres in 1907), Eastern Bengal (55,194 acres), Bengal (52,983 acres), and Burma (1669 acres). Included in the 1907 production were 3,546,500 pounds of green tea, of which 1,293,875 were produced in the Surma valley. Since 1885 the area under tea in India increased 91 per cent., and the production 246 per cent. The quantity of Indian tea exported during the year ending March 31, 1908, was 228,187,826 pounds, of which the United Kingdom took 169,474,706 pounds; Russia, 15,407,027; Australia and New Zealand, 11,090,431; Ceylon, 8,880,884; China and Hongkong, 7,502,342; Turkey, 3,851,775; the United States, 2,806,408; Canada, 4,731,513.

COTTON AND JUTE. The total area under cotton in India was 19,732,000 acres in 1906-7; 20,826,000 in 1907-8; and was estimated at 18,670,000 in 1908-9. The principal centres of cotton production were in 1907-8 as follows: Bombay (including Native States) and Baroda, 5,276,000 acres; Central Provinces and Berar, 4,429,000; Punjab (including Native States) 1,155,000; United Provinces, 1,100,000; Ajmer-Merwara, 2,971,000; Central India, 1,002,000; Madras, 684,000. The total yield in 1906-7 was 4,945,700 bales (400 lbs. each); for 1907-8 it was estimated at 3,049,000, and for 1908-9 at 3,641,000 bales. The export of cotton during the year ending September 30, 1907, was 2,717,000 bales; the mill consumption was 1,895,000 bales; and the local consumption was estimated at 750,000 bales, this estimate being based on the assumption that one pound of cotton per capita is absorbed by the 300,000,000 inhabitants.

SUGAR. Notwithstanding a home production of 2,223,400 tons of cane-sugar, there were imported, in 1906-7, 11,104,003 cwts. of sugar, of which 3,800,000 were beet sugar, mainly from Austria-Hungary, Germany, Great Britain, etc.

IRRIGATION. The principal results of the operations of the government irrigation works for the fiscal year 1906-7 are shown below:

	Major Works	Minor Works
Main canal, miles	9,485	5,340
Distributaries, miles	27,350	2,242
Area of land irrigated during the year, acres	13,551,159	2,248,399
Total capital outlay to end of year	£ 29,079,585	£ 4,250,079
Gross receipts	£ 3,383,827	£ 377,899
Working expenses	£ 1,038,883	£ 153,269
Net revenue (excluding charge for interest)....	£ 2,344,944	£ 224,630
Percentage of above revenue on total capital outlay	8.06	5.28
Interest on direct capital outlay	£ 935,231	£ 138,057

In 1908 it was reported that the government proposed to link the five rivers of the Punjab—the Indus, Jelum, Chenab, Beas, Ravi and Sutlej—in such a manner as to equalize the flow of water when one river or more is in flood and thus supply the whole canal system connected with these rivers.

MINING. The total value of the mineral production in 1907 was £7,071,868, against £6,312,821 in 1906. The following table shows the production and value of the principal minerals in British Territory and Native States in 1907:

	Quantity	Value
Gold, ounces	556,488	£2,133,691
Coal, tons	11,147,339	2,609,726
Petroleum, gallons	152,045,677	610,015
Salt, tons	1,102,594	397,770
Manganese ore, tons	898,345	589,830
Saltpetre, cwts. *	357,589	274,679
Mica, cwts. *	38,922	228,161
Jadestone, cwts. *	4,897	74,509
Ruby, sapphire, and spinel, carats	640,217	98,258

*Exports.

The bulk of the coal comes from Bengal—9,993,348 tons in 1907. Salt is supplied mainly by Northern India, Bombay, and Madras. About half the total production is supplied by private manufactures, and the other half by the government. Manganese ore, of which India is one of the world's largest producers, comes mainly from the Central Provinces (496,000 tons in 1907), Madras (108,966) and Central India. Despite the occurrence of iron ore of a superior quality attempts to erect smelting plants have proved failures, except at Barakar on the Raniganj coal field, where there are blast furnaces with an annual output of 50,000 tons of pig iron. To the gold production of 1907 Mysore alone contributed about 531,850 ounces, valued at £2,022,367. In 1908 the Kolar district in Mysore, including the Hutti mine in the Deccan, reported an output of 560,343 ounces of bullion equivalent to 504,309 ounces of fine gold, as compared with 549,731 ounces of bullion in 1907. Petroleum is furnished almost entirely by Burma (148,888,002 gallons in 1906-7) and Assam (3,156,665 gallons). The petroleum resources of India are capable of indefinite development. Burma furnishes the bulk of the jadestone (4001 cwts. in 1906-7) and all the rubies (296,125 carats, valued at £115,465).

MANUFACTURES. In 1906-7 the number of cotton mills in India (including Native States and French territory) was 217, with 5,546,388 spindles, 59,375 looms, and an average of 211,711 employees. In 1908 there were 5,699,898 spindles, which consumed during the year 1,548,838 bales of cotton. The cotton spinning

and weaving returns for British India, Berar, and Native States, for the year ended March 31, 1908, were as follows: Cotton yarn spun, 638,295,115 lbs.; gray and bleached piece goods, 155,084,079 pounds (680,046,821 yards); colored piece goods, 31,235,066 pounds (128,379,740 yards); gray and colored goods other than piece goods, 1,815,473 pounds; hosiery, 724,476 pounds; miscellaneous goods, 192,585 pounds.

The number of jute mills in British India in 1906-7 was 44; capital employed, £2,718,358; looms, 25,284; spindles, 520,504; employees, 166,805. The number of paper mills in 1907 was 8; employees, 5201; production, 55,215,703 pounds, valued at Rs. 7,290,385. The competition of cheap wood pulp paper imported from Europe has checked the development of paper making by the older methods. The following statement shows the number of works and persons employed in the other large industries in 1906:

	Works	Employees
Woolen mills	6	3,403
Government arms and ammunition factories	14	16,037
Coal mines	306	99,138
Cotton ginning, cleaning, and pressing mills	962	94,894
Dockyards, including government works	15	12,632
Gold mines	33	36,150
Indigo factories	196	102,148
Iron and brass foundries	74	26,123
Jute presses	126	23,639
Lac factories	62	5,869
Mica mines	358	15,723
Petroleum refineries	4	5,079
Printing presses	102	22,352
Railway open lines	34	391,865
Railway workshops	87	87,419
Rice mills	92	12,756
Saltpetre mines	—	50,469
Silk filatures	61	10,231
Tanneries	21	10,125
Tile factories	86	15,645
Timber mills, including government works	64	7,886
Woolen carpet weaving establishments not classed as mills	11	2,175

The number of factories subject to the Factory Acts in 1906 was 1732, with 690,712 employees, of whom 546,693 were men, 102,796 women, and 41,223 children.

FOREIGN COMMERCE. The sea-borne imports and exports in 1906-7 were valued at £107,881,339 and £121,595,051 respectively, against £95,843,170 and £118,203,751 in 1905-6. The imports and exports by land in 1906-7 were £6,609,306 and £5,178,597, against £6,266,261 and £4,903,864 in 1905-6. The foreign trade of 1906-7 was distributed as follows:

	Sea-borne Trade		Land Trade	
	Imports	Exports	Imports	Exports
Private Merchandise	£75,205,055	£117,710,942	.....	.....
Government Stores	3,956,410	71,940	.....	.....
Total Merchandise	£78,161,465	£117,782,882	£5,900,708	£4,412,530
Private Treasure	18,133,990	3,808,672	.....	.....
Government Treasure	11,585,884	3,497	.....	.....
Total Treasure	£29,719,874	£3,812,169	£708,608	£764,077
Grand Total	£107,881,339	£121,595,051	£6,609,306	£5,178,597

The sea exports of private merchandise in 1906-7 consisted of £115,388,249 of Indian produce and manufactures, and £2,322,693 of foreign produce and manufactures. Exports by sea of merchandise showed an excess of £39,621,417 over imports, and imports by sea of treasure showed an excess of £25,907,705 over exports, giving an excess of total sea exports over imports of £13,713,712. The principal imports of private merchandise by sea in 1906-7 were valued as follows: Cotton manufactures, £25,129,553; cotton twist and yarn, £2,148,773; hardware, cutlery, implements, etc., £1,769,004; machinery and millwork, £3,860,030; iron, £2,878,888; steel, £2,166,580; mineral oils, £1,617,978; provisions, £1,015,560; railway plant and rolling stock (exclusive of railway materials for State lines, £2,889,682), £2,772,260; silk manufactures, £1,216,697; sugar, £5,825,408; wool manufactures, £1,368,111. The principal exports of Indian produce and manufactures in 1906-7 were valued as follows: Raw cotton, £14,652,307; cotton twist and yarn, £6,931,021; cotton manufactures, £1,181,139; rice, £12,350,281; wheat, £4,836,310; raw hides and skins, £7,262,664; dressed and tanned hides and skins, £2,967,503; raw jute, £17,892,454; jute manufactures, £10,477,487; lac of all sorts, £2,333,182; opium, £6,205,281; seeds, £8,681,153; tea, £6,579,359; raw wool, £1,617,690. The trade by sea with the principal countries of origin and destination (imports of private merchandise and exports of Indian produce and manufactures) in 1906-7 was as follows:

From and to	Imports	Exports
United Kingdom	£ 48,198,645	£ 31,289,511
Austria-Hungary	2,045,655	4,012,295
Belgium	2,903,595	4,798,542
France	975,156	7,470,046
Germany	3,860,580	13,149,723
Netherlands	418,551	1,201,816
Italy	720,728	3,803,607
Spain	63,464	1,055,104
Egypt	104,777	1,316,820
Mauritius	1,445,055	832,740
Canada	1,656	517,942
United States	1,698,037	10,415,735
Ceylon	566,312	4,254,617
China, Hongkong	561,809	7,249,573
China, Treaty Ports....	433,923	5,318,539
Japan	1,073,401	4,729,964
Straits Settlements	1,845,726	4,352,661
Java	1,936,271	350,876
Australia	467,626	1,587,620
New Zealand	5,507	264,345

The land trade is principally with Afghanistan, Kashmir, Nepal, Western China, Shan States, and Siam. The valuation of this trade is still difficult and defective, especially as regards treasure. In 1907-8 imports by sea were valued at £119,188,000, and exports by sea at £121,814,000; imports by land were valued at Rs. 155,410,102 (about £10,360,673), and exports by land at Rs. 141,390,673 (about £9,426,045). The total value of the coasting trade in 1906-7 was £73,594,868, against £67,055,586 in 1905-6.

SHIPPING AND NAVIGATION. The total number of ships, with cargoes and in ballast, entered at Indian ports in 1906-7 was 4767, of 6,919,983 tons; of those cleared, 4562, of 6,855,453 tons. The United Kingdom and British

possessions furnished 4,765,972 tons of the tonnage entered, and 4,006,805 of the tonnage cleared.

INTERNAL COMMUNICATIONS. The railways had a length of 30,010 miles at the end of 1907, consisting of 22,355 miles of State lines; 905 miles of guaranteed company (Madras Co.) lines; 3117 miles of assisted companies' lines; 42 miles of unassisted lines; 3517 miles of Native State lines; and 74 miles of foreign lines (French and Portuguese India). The total capital outlay on railways to the end of 1907 was £265,621,000. Gross earnings during 1907 were £31,512,000; working expenses, £16,190,000; net earnings, £15,322,000; percentage of net earnings on capital outlay, 5.77; number of passengers, 305,890,000; tonnage of freight, 62,098,000; railway staff, 516,756 (7180 Europeans, 9982 Eurasians, and 499,594 natives). The length of government telegraph lines in 1906-7 was 67,587 miles; receipts, £838,590; working expenses, £644,205; net revenue, £194,385; total capital outlay to end of year, £6,563,757; percentage of net revenue on capital outlay, 2.95.

In 1906-7 there were 17,180 post offices; total strength of establishment, 85,873; gross revenue, £1,751,294; gross expenditure, £1,534,892.

BANKS AND JOINT-STOCK COMPANIES. In 1906 the three Presidency banks and 8 joint-stock banks whose head offices are in India had a capital of Rs. 49,394,033 (1 rupee equals 32.44 cents); reserve, etc., Rs. 33,625,035; deposits, Rs. 420,842,634; cash balance, Rs. 124,457,692. Ten Exchange banks whose head offices are not in India had in 1906 a capital of Rs. 15,866,592; reserve, etc., Rs. 8,421,339; deposits in India, Rs. 180,873,247; cash balance in India, Rs. 51,058,790. Post office savings banks had, in 1906-7, 1,190,220 depositors (105,212 Europeans; 1,085,008 native) with deposits amounting at the end of the year to Rs. 147,669,789. The number of joint-stock companies (including banks) in 1906-7 was 1922, with a paid-up capital of £29,512,583.

GOVERNMENT. The King of Great Britain and Ireland is Emperor of India. The administration of the Indian Empire in England is under the supervision of the Secretary of State for India, assisted by a Council of not more than 14 members, vacancies in which are filled by him. They are selected for a period of 7 years, chiefly from Indian ex-officials. In 1907 for the first time two Indian members were appointed. The appropriation and expenditure of the revenues of India, in India and elsewhere, require the concurrence of a majority of votes at a meeting of the Council; but in matters affecting the relations of the Indian government to foreign powers or Native States, the Secretary of State is independent of the Council. The supreme executive authority in India is vested in the Governor-General in Council, or government of India. The Governor-General, or Viceroy, in 1908, was Gilbert John Elliot, Earl of Minto, appointed in November, 1905. The Council consists at present of six members, appointed, like the Governor-General, by the Crown, besides the Commander-in-Chief, who is an extraordinary member. There are nine departments, each headed by a Secretary—Home, Foreign, Finance, Army, Military Supply, Public Works, Revenue and Agriculture, Commerce and Industry, and Legislative. Each depart-

ment is under the immediate care of one of the members of the Council, but the Foreign Department is always under the immediate supervision of the Governor-General. The Governor-General's Council is expanded into a legislative council by the addition of 16 members, appointed by the Viceroy, of whom one-half are non-official persons, and some are always natives. Subject to certain restrictions, the legislative council has power to make laws for all persons within British Territory, for all British subjects within the Native States, and for all native Indian subjects in any part of the world. In 1908 Lord Morley, Secretary of State for India, announced that in future there will be in the legislative council a number of native elective members, although a majority of the members will continue to be appointed and the will of the Viceroy will remain supreme. For administrative purposes, the territory is divided into great provinces, namely, Madras, Bombay (both under Governors), Bengal, Eastern Bengal and Assam, United Province of Agra and Oudh, the Punjab, Burma (these under Lieutenant-Governors), Central Provinces (under a Chief Commissioner), and the Northwest Frontier Province (under an Agent to the Governor-General), besides the minor divisions of Ajmer-Merwara, Coorg, British Baluchistan, and the Andaman and Nicobar Islands, each under a Chief Commissioner. The Governors are appointed by the Crown, the Lieutenant-Governors by the Governor-General with the approval of the Crown, and the Chief Commissioners, etc., by the Governor-General in Council. Each province has a council of its own. The administrative independence of the provinces varies with their importance and situation. Each province is usually subdivided into districts under Commissioners, and these again into districts under executive officers, styled Collectors, Magistrates, or Deputy Commissioners. These district executives act in some cases also as judges, and they usually have under them assistants, deputies, and other officials. The total number of these districts in British Territory is about 250. The municipalities have considerable latitude of action; but the imposition of new taxes or the enactment of new by-laws requires the sanction of the Provincial government. The municipal committees are mainly elected by the ratepayers. In 1906-7 there were 750 municipalities, with a total population of 16,760,517; their total revenue and expenditure, respectively, were £5,846,510 and £5,740,120. In rural districts, except in Burma, there are district and local boards, which have charge of roads, district schools, and hospitals.

The Native States are governed by the native princes, ministers, or councils, subject to the control of British Residents or Political Agents, in charge of a single State or a number of States. The Indian government may exercise over these States any degree of control in case of misgovernment, but, in general, the more important States are autonomous. Some of them are required to pay a fixed annual tribute. They have no right to make war or peace, to maintain relations with each other or external States, or to maintain a military force beyond a specified limit.

FINANCE. In 1906-7 the gross revenue was £73,144,554, of which £874,465 was obtained in

Great Britain. The expenditure charged to revenue was £71,555,179, of which £52,346,771 was spent in India and £19,208,408 in Great Britain. The capital expenditure on railways and irrigation works, not charged to revenue, was £8,712,668. Thus the total expenditure in 1906-7 was £80,267,847. The budget for 1907-8 estimated the gross revenue at £70,989,000, and the expenditure charged against revenue at £70,754,000. The principal estimates of revenue for 1907-8 were: Land tax, £18,525,000; opium tax, £5,223,000; salt monopoly, £3,337,000; stamps, £4,235,000; excise, £6,195,000; customs, £4,964,000; income tax, £1,482,000; forests, £1,742,000; post office, £1,834,000; telegraphs, £1,004,000; railways, £12,929,000; irrigation, £3,448,000. The principal estimates of expenditure in 1907-8 are: Land revenue collection charges, £3,523,000; opium tax collection charges, £1,663,000; interest on debt, £1,799,000; police, £3,785,000; law and justice, £3,442,000; education, £1,450,000; famine relief, £1,182,000; post office, £1,717,000; telegraphs, £1,091,000; railways, £11,001,000; irrigation, £2,834,000. The consolidated debt stood on March 31, 1907, at £234,488,677, of which £86,970,043 was contracted in India and £147,518,634 in Great Britain. The non-consolidated debt, contracted in India, was £19,359,942.

ARMY. For 1908-9 the established strength of the European and native armies (exclusive of native artificers and followers) was as follows: European army, 75,751 officers and men; European volunteers (efficients), 32,727 officers and men; native army, 158,932 officers and men; native Imperial service troops, 19,875 officers and men. The European army consisted of 53,802 infantry, 5652 cavalry, 15,854 artillery, besides engineers, etc. The native army consisted of 119,045 infantry, 23,976 cavalry, 16,672 artillery, 4980 engineers, etc.

HISTORY.

BORDER FIGHTING. The Zakka-Khels, a tribe of the Afridi, having made raids into British territory, a small punitive expedition under Maj.-Gen. Sir James Willcocks was dispatched into the Bazar Valley, leaving Peshawar on February 13. The tribesmen were taken by surprise, their towns were destroyed, and their principal strongholds were captured. The British withdrew on February 29, having imposed terms whereby other tribes of the Afridi guaranteed the good behavior of the Zakka-Khels and agreed to punish the chief offender. A disturbance on the Mohmand border was more serious. The Mohmands had made several raids and plundered the neighboring regions, and the situation was the more menacing from the presence of a strong body of Afghan allies. Gen. Willcocks, who was again placed in command, occupied a position on the frontier extending over 16 miles at Shabkadr, and finding his communications threatened began his attack on April 24. He routed them, inflicting a loss estimated at 100 and suffering only slight losses in return. A considerable Afghan force attacked Landi Kotal on May 1, but was driven back with loss, and Gen. Willcocks who arrived on the following day repulsed the remainder inflicting heavy losses. Meanwhile the Indian government protested to the Ameer against the participation of his subjects in the revolt and the Ameer replied that stringent orders had been issued recalling the Afghans and forbidding any

of his subjects to cross the border to the aid of the Mohmands. (See AFGHANISTAN.) The Mohmands still held out and on May 13 Gen. Willcocks proceeded against them, and destroyed a number of their towns. Some sharp fighting took place on May 20, in which the British casualties numbered 26 and the enemy's loss was estimated at 140 killed. By the end of the month the tribes had either submitted or been effectively punished and the British troops returned. The cost of the operations against the Zakka-Khels was estimated at £57,000, and of the operations against the Mohmands at £150,000.

FAMINE AND DISASTER. Great distress prevailed on account of scarcity of wheat and although the rainfall of February gave promise of better spring crops, the scarcity continued. Early in February the number in receipt of state relief was 738,934; in April it was estimated at 1,500,000 and in the summer 1,416,000 were engaged on relief works. At the close of the year conditions improved and the number in receipt of state relief was much less. At the beginning of October a disastrous flood was reported at Hyderabad. The loss of life could not be accurately determined, the official figures ranging from 5000 to 7000. It was estimated that 15,000 houses were destroyed and 100,000 people made homeless.

NATIVE UNREST. The National Congress opened at Surat on December 26, 1907, with 2000 delegates, but the meeting soon broke up in disorder owing to the irreconcilable differences between the Moderates and the Extremists, the latter opposing the election of Dr. Behari Ghose as president. The Moderates under Dr. Behari Ghose formed a committee to reconstitute the Congress on its original basis and work for ultimate self-government by constitutional means, while the Extremists under Mr. Tilak appointed a committee to carry on the work of the Congress in accordance with the Calcutta resolutions of 1906. The year 1908 was marked by an outbreak of crime and the publication of many seditious articles in the native press. On December 25, 1907, a Dacca magistrate was killed by a native at Golaunda. On May 1, 1908, a bomb was thrown at an Englishwoman's carriage at Muzaffarpur, Eastern Bengal, killing her and her daughter and coachman. In May a large number of bombs were discovered in Calcutta and evidence of a far-reaching anarchist plot was secured. It was reported that systematic anarchistic plans on a very large scale were being carried out, including a so-called anarchist "college" where instruction in the use and making of explosives was given. Over thirty persons were arrested. From the confessions of some of the prisoners it appeared that they had been incited by speeches and the press.

Great alarm was felt at the increase of anarchy in the country and repressive action was urged. On June 1, a bomb was thrown at a train in Eastern Bengal seriously injuring two men. On November 7, an unsuccessful attempt was made to assassinate Lieut.-Gov. Sir Andrew Fraser. Violent speeches and seditious articles in the press were frequent. On June 8 the Legislative Council adopted repressive measures dealing with the press and with the use of explosives. The former provided for the confiscation of the printing presses of any paper

publishing a seditious article and for stopping its issue, but action could be taken only on application from the local government. The press law was heartily approved by Lord Morley as a necessary means of preventing crime. In India the outbreak of lawlessness was generally attributed to the incitement of the newspapers and the government's repressive policy in this respect was favored by many prominent natives. On the passage of the press and explosive acts Lord Minto in an address to the Council scouted the view of certain critics that the assassinations and other outrages were the efforts of a downtrodden people to free itself from foreign oppression. The seditious spirit had, he said, come from abroad, and its doctrines were entirely new to India.

The new laws seemed for a time to have a quieting effect, but outrages soon began again and violent articles continued to appear in the newspapers. In July Mr. Tilak, the leader of the Extremists, was arrested on the charge of criminal libel in a newspaper article and sentenced to a fine and deportation for six years. Serious riots followed in Bombay. Many other editors were arrested on similar charges and sentenced to imprisonment or deportation. By newspaper articles and pamphlets and by secret agencies the attempt was made to sow sedition and especially to alienate the Indian troops and discourage recruiting by representing them as the mercenaries of the foreign oppressor and as underpaid. The latter attempts were unsuccessful, but an increase of pay was nevertheless decided upon and it was definitely promised in the royal proclamation to go into effect January 1, 1909. Among the agencies of revolt were the so-called Samitis and national volunteer companies, which were said to be intended as a nucleus for a military force to be employed against British rule.

In December the Vice-regal Council passed a Summary Justice measure, providing that anarchistic crimes should be tried by three judges of the High Court, the trial to be without jury but after impartial inquiry before a magistrate. It also provided for the punishment by fine and imprisonment of members of associations which encouraged violence or intimidation and heavier penalties for the managers of such associations.

THE KING'S MESSAGE. On October 30, the fiftieth anniversary of Queen Victoria's assumption of the government, an impressive Durbar was held at Jodhpur at which a message from the King was read. It referred to the purposes, difficulties and achievements of British rule; to what had been done to stop the ravages of plagues and droughts; to the promotion of works of public utility and improvement, and to the preservation of the rights of the feudatory princes and ruling chiefs, whose loyalty it commended. The King declared it the duty of the government to repress conspiracies, and expressed his faith in the loyalty of the great mass of his Indian subjects. He referred to the projected measures of reform and to the steps already taken to obliterate race distinctions as a test for public office and to introduce gradually representative institutions. As on the Coronation Durbar of 1903, he directed that the sentences of prisoners duly punished for offences against the law be remitted or reduced.

NATIVE DEMANDS. A prominent native of India at a public address in London toward the

end of the year gave the following account of native political aspirations and tendencies. The educated classes were, he said, much disturbed by the repressive measures of the present administration and had lost hope in any great political progress. Nine-tenths of these classes desired reforms; one-tenth wished separation from England. The older and more prudent supporters of the National Congress held that a long period of coöperation with the British was needed to develop capacity for self-government; but the young and ardent element, which was gaining influence, favored resistance and obstruction as a means of extorting concessions. Of those who aimed at independence most favored peaceful means, but there was a small but violent group of anarchistic tendencies, with a programme of physical force. Substantial reforms might conciliate the larger and peaceable element. Their national spirit was strong and it had been offended by the treatment of Indians in the other British colonies, for example, in South Africa and in Canada, which had shown them how little Imperial citizenship really meant. The present system in India was bad and he declared that the reform scheme promised by the government ought to complete the rural and urban machinery for self-government and introduce self-government into the provincial administration. The Provincial Councils ought, he thought, to be reorganized, with elected instead of official majorities and with a fair degree of native control over administrative and financial matters subject to the government's veto. The Executive Councils should be thrown open to Indians. The district administration should be decentralized and popular representatives associated with the heads of the district. The partition of Bengal ought to be modified. If these things were done and if amnesty were granted to political prisoners, he thought there would be a hope of allaying the present discontent.

THE GOVERNMENT'S REFORM PROPOSALS. The government's reform scheme above mentioned had long been under discussion between the Viceroy and the Chief Secretary for India and was eagerly awaited by the friends of progress. On December 17 Lord Morley announced the reform measures in the House of Lords. Their essential points were: To increase the number of the Legislative Councils, including both the Viceroys' and the Provincial Councils, and while retaining the method of nomination, to introduce election along with it "with a view to the due representation of all classes of the community"; to empower the Legislative Councils "to discuss matters of public and general importance, and to pass recommendations or resolutions to the government"; to establish Executive Councils for the Lieutenant-Governors to repeal the existing prohibition of resolutions or divisions in the Council in financial discussions. The plan retains the official majority in the Viceroy's Legislative Council but not in the Provincial Councils where Lord Morley declared they tended to "deadens the sense of trust and responsibility in the non-official members. The government would henceforth appoint native Indians to the Viceroy's Executive Council and to the Provincial Executive Councils. Representation in the Legislative Councils was to be secured by an electoral college, whose members should be proportioned to

the numerical ratio of Hindus to Mohammedans in the Province. Lord Morley outlined his suggestions on this point as follows: "I will briefly describe the scheme that at present commends itself to me, and in order to make the method of working clear, I will assume hypothetical figures for a given province. Let it be supposed that the total population of the province is 20 millions, of whom 15 millions are Hindus and 5 millions Mohammedans, and the number of members to be elected 12. Then since the Hindus are to Mohammedans as three to one, nine Hindus should be elected to three Mohammedans. To obtain these members, divide the province into three electoral areas, in each of which three Hindus and one Mohammedan are to be returned. Then, in each of these areas, constitute an Electoral College consisting of a hundred members. In order to preserve the proportion between the two religions, 75 of these should be Hindus and 25 Mohammedans. This College should be obtained by calling upon the electorates, which might be (a) substantial landowners paying not less than a fixed amount of land revenue; (b) the members of rural or sub-divisional Boards; (c) the members of District Boards; and (d) the members of municipal corporations, to return to it such candidates as they desired, a definite number being allotted to each electorate. Out of those offering themselves and obtaining votes, the 75 Hindus who obtained the majority of votes should be declared members of the College, and the 25 Mussulmans who obtained the majority should similarly be declared elected. If the Mussulmans returned did not provide 25 members for the Electoral College, the deficiency would be made good by nomination. Having thus obtained an Electoral College containing 75 Hindus and 25 Mussulmans, that body would be called upon to elect three representatives for the Hindus and one for the Mohammedans; each member of the College would have only one vote, and could vote for only one candidate. In this way it is evident that it would be in the power of each section of the population to return a member in the proportion corresponding to its own proportion to the total population. In the same way the desired proportion would be obtained of representatives of any particular interest, as, for instance, of landowners. All that is necessary would be to constitute the Electoral College in such a way that the number of electors representing the land-owning interest should bear to the total number the same proportion as the members of Council representing that interest to be elected bear to the total number to be elected."

The correspondence on the subject between the Secretary of State and the Indian government was at the same time presented to Parliament in a Blue Book. Lord Morley's speech on this occasion was widely praised for its candor and wisdom. He declared that he was far from aspiring to establish a Parliamentary system in India. But reform was necessary if political capacity were to have a chance to develop. "I am sick," he said, "of all the retrograde commonplaces about the weakness of concession to violence, and so on. Persevering in our plan of reform is not a concession to violence. Reforms that we have publicly announced, adopted and worked out for more than two years—it is no concession to violence to

persist in these reforms. It is simply standing to our guns." Nor did he believe the oft-repeated warning that the Oriental peoples invariably interpret kindness as fear. He approved the action of the present Indian government in rigorously suppressing popular disorders and the seditious press and denied that there was in it any infraction of liberty. The present disturbances were, in his opinion, sporadic and transitory. The situation was not so serious as many thought. India was on the whole loyal. The government would persist in its measures for enforcing order and would persist equally in carrying out the reforms to which it was committed.

INDIAN ATTITUDE TOWARD THE REFORMS. The scheme went further than had been expected by many of the natives and it was at first received by the moderate reform element with enthusiasm. The sacrifice of the official majority on the Provincial Councils was especially welcome and it was seen that the popular principle could be carried down through the district administration to the village. Already in the Bombay government the official majority in the Council had been given up and there was no longer any official participation in local bodies. The Indian National Congress, whose last meeting (December, 1907) had broken up in disorder, assembled on December 28 at Madras. Dr. Behari Ghose was elected president and in his address he declared his "emphatic approval of the projected reforms, for which the whole nation was deeply grateful." It was questioned, however, in certain quarters by the English whether this actually represented the sense of the people. The Congress stood for the educated classes in a country in which out of 226,000,000 inhabitants only 625,000 adults were, according to the last census, able to read and write English. As to the repressive policy, the president declared that it was bad as tending "to drive discontent beneath the surface." Resolutions were passed expressing loyalty to the King-Emperor, and approval of the reform scheme. There was some criticism of the Electoral College feature by the Moslems as unlikely to accord them actually a fair representation. But discussion had not fairly begun at the close of the year and it was too soon to learn the real attitude of public opinion either in India or Great Britain. At the All-India Mohammedan Conference at Amnitsar on Dec. 31 the president in his inaugural address declared that Mohammedans would not permit malice to warp their judgment or create disaffection in the relations with the government and that the best sense of the natives recognized that British occupation meant progress. The Congress closed on Dec. 30.

INDIA, PORTUGUESE. See PORTUGUESE INDIA.

INDIANA. One of the North Central Division of the United States. Its total area is 36,584 square miles.

MINERAL RESOURCES. The production of petroleum in Indiana shows a marked decrease in 1907 from the figures of 1906. In the former year there were produced 5,128,037 barrels as against 7,673,477 barrels in 1906. The decline in the production in the field which includes Indiana is largely accounted for by the new Illinois field on the West, which has in the last two years attracted many Indiana operators.

The value of the petroleum produced in 1907 was \$4,536,930 as against a value of \$6,770,066 for the product of 1906. In the production of coal Indiana ranks sixth among the States. There were produced in 1907 13,985,713 short tons, valued at \$15,114,300. The coal production has increased with marked rapidity during the last decade. The production of 1907 showed an increase over that of 1906 of 1,893,153 short tons, and in value \$1,988,039, or 15.66 per cent. in quantity and 15.23 per cent. in value. The production in 1906 was decreased on account of suspension of work by miners of the State pending a settlement of wage agreements. In 1907 the loss of time by reason of labor disaffection was inconsiderable. The aggregate production of coal in Indiana at the close of 1907 amounted to 157,440,390 short tons. There were killed in the mines of Indiana in 1907 53 men and 451 men were injured. In the mining of the coal 513 coal-mining machines were used. In the production of Portland cement Indiana ranks third among the States. There were produced in 1907 3,782,884 barrels, valued at \$4,757,860. This is a slight decrease from the production of 1906, which was 3,951,836, valued at \$4,964,855. Of natural cement there were produced in 1907 400,000 barrels valued at \$140,000 as compared with 600,000 barrels produced in 1906 with a value of \$240,000. Indiana produced clay products in 1907 to the value of \$6,858,124 as compared with the value of the product of 1906 of \$7,158,234. The State is a large producer of lime. In 1907 107,964 tons valued at \$335,151 were produced, a decrease from the product of 1906 which was 114,819 tons, valued at \$353,648. The value of stone products in 1907 was \$3,639,551 as compared with \$3,756,305 in 1906. Indiana ranks sixth among the States in the production of stone. Of the stone produced, limestone formed the greater part, the value of this product being in 1907 \$3,624,126. Other mineral products of the State are coal products including coal tar, illuminating gas, etc., pyrite, and oilstones. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$39,141,217, as compared with a value in 1906 of \$34,472,776. Estimates indicate that the production of coal in 1908 was 25 to 30 per cent. less than in 1907. Most of this decrease is attributed to the unsettled financial conditions.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 137,835,000 bushels, valued at \$82,701,000, from 4,579,000 acres; winter wheat, 45,169,000 bushels, valued at \$44,266,000, from 2,721,000 acres; oats, 35,425,000 bushels, valued at \$16,650,000, from 1,671,000 acres; barley, 207,000 bushels, valued at \$135,000, from 9000 acres; rye, 945,000 bushels, valued at \$699,000, from 63,000 acres; buckwheat, 119,000 bushels, valued at \$93,000, from 7000 acres; potatoes, 5,130,000 bushels, valued at \$4,309,000, from 90,000 acres; hay, 3,750,000 tons, valued at \$33,000,000, from 2,500,000 acres; tobacco, 8,715,000 pounds, valued at \$1,045,800, from 12,450 acres. Winter wheat has varied greatly in production since 1900, with a minimum of 6,411,702 bushels in that year to a maximum of 48,080,925

bushels in 1906. The production in 1908 showed a marked increase over that of 1907, which was 34,013,000 bushels. The corn crop, on the other hand, showed a considerable decrease from the production of 1907, which was 168,840,000. The hay crop showed a slight increase in 1908 over 1907 when the figures were 3,143,000 tons. The decrease in the production of tobacco in 1907 was very marked, when 14,100,000 pounds were grown. The number of farm animals on December 31, 1908, was as follows: Horses, 830,000; mules, 920,000; dairy cows, 680,000; other cattle, 1,052,000; sheep, 1,215,000; swine, 3,033,000. All classes except swine show an increase since 1900. The estimated value of the wool clip in 1908 was \$1,219,680.

MANUFACTURES. A comparison of the results of the census of 1905 with those of 1900 showed a decrease of 1.2 per cent. in the number of establishments, but an increase of 42.3 per cent. in the amount of capital invested, of 10.9 per cent. in the average number of wage-earners, and of 16.9 per cent. in the value of products. The wage-earners in 1905 numbered 154,174, of whom 10,230 were women over 16 years of age, and 3393 were children under 16. The value of products in 1905 was \$393,954,405. The values credited to leading industries and, in parentheses, the percentage of increase over 1900 were: Flour and grist mill products, \$36,473,543 (25.6); slaughtering and meat packing, \$29,352,593 (33.1); foundry and machine shop products, \$23,108,516 (34.1) distilled liquor, \$20,520,261 (21); iron and steel (12.5 per cent. decrease); carriages and wagons, \$15,228,337 (20.3); glass, \$14,706,929 (3 per cent. decrease); lumber and timber products, \$14,559,662 (27.1 per cent. decrease); steam railroad shop work, \$14,515,330 (41.7), and furniture, \$13,496,778 (53.9).

EDUCATION. The consolidation of rural schools has grown very rapidly during the past seven years. The number of abandoned schools October 23, 1908, was 1807; the number of consolidated schools 432. At this time, 16,491 children were being transported at public expense. This movement has resulted in the marked extension of high school opportunities, and has developed a strong sentiment in favor of agricultural and industrial education, manual training, domestic science, etc. Among the more important laws of recent years are: The Teachers' Wage and Qualification Law puts all teachers in three classes according to qualifications in scholarship, professional training and experience. The salaries of teachers in the first class range from \$45.67½ to \$53.55 per month, depending on the scholarship shown on examination for license. The salaries of teachers in the second class range from \$57.96 to \$64.26; and the salaries of teachers in the third class range from \$71.29½ to \$74.97 per month. The normal school law provides for a system of normal schools in the State. The consolidation law provides for the abandonment of all schools in the State which had an average daily attendance during the last preceding school year of 12 pupils or fewer, and permitting the school authorities to abandon all schools with an average daily attendance of 15 or fewer. The law also provides that the school officials shall transport the pupils in comfortable and sanitary hacks at public expense. The law raising the State tax produced in 1908 about \$500,000 with

which to pay the extra wages required by the Minimum Wage and Qualification Law. The Deficiency Law provides for the levying of a small State tax, the revenue from which enables the poor townships and towns of the State to establish high schools, pay the minimum salaries, support the minimum term of schools, etc. This law places the schools of the State practically on a seven-months term basis. The common schools are defined as follows: (a) Elementary schools, and (b) high schools. The elementary schools shall include the first eight years of school work, and the course of study for such years which is now prescribed or may hereafter be prescribed by law. The commissioned (standard) high schools shall include not less than four years' work following the eight years in the elementary schools. The high school course in non-commissioned high schools shall be established and amended or altered from time to time, as occasion may arise, by the State Board of Education. All classes of high schools shall be under the direction of the State Board of Education. These laws are all of recent origin.

A statement from the State Superintendent of Public Instruction gives the school population (ages 6 to 21) as 764,678 in 1908. The total enrollment was 531,731, and the average daily attendance 422,116. The average length of school term for all schools was 145 days, being 173 days in cities, 154 days in towns and 140 days in townships. The number of commissioned high schools having courses of two to four years, was 454, of which those having a course of four years of eight months each numbered 270; and the number of certified high schools—those having a course of four years of seven months, or of three years of eight months each—was 80. The number of teachers employed in commissioned high schools was 1428 in 1908, and in non-commissioned, 628. The total expenditure for common schools in 1908 was \$12,879,015.57. The amount of the congressional township fund August 1, 1908, was \$2,474,152.38½, and of the common school fund, \$8,528,210.47.

FINANCE. The balance in the treasury September 30, 1907, was \$1,096,459.82. The total receipts for the fiscal year following were \$10,271,991.16, and the total expenditures, \$10,759,365.10, leaving a balance September 30, 1908, of \$609,085.88. The funds showing the largest receipts were the general fund, \$6,092,567.10; the school revenue fund for tuition, \$2,792,983.40; the benevolent institution fund, \$830,667.28, and the educational institution fund, \$456,887.27. The general fund is derived mainly from the property tax, with considerable additions from insurance and corporation taxes and fees. About 80 per cent. of the school revenue is derived from current taxes and 20 per cent. from interest on the school fund. The total debt of the State, September 30, 1908, was \$1,510,163, of which \$805,615 was classed as foreign, and \$704,548 as domestic debt. The latter consisted mostly of \$144,000 of Indiana University bonds held by the State Treasurer, and \$340,000 bonds held by Purdue University. Outstanding warrants amounted to \$23,239.96.

CHARITIES AND CORRECTIONS. The following institutions are under the care of the State Board of Charities. Their populations in 1908 are given in parenthesis: The Central Hos-

pital for Insane (1050); Northern Hospital for Insane (938); Eastern Hospital for Insane (779); Southern Hospital for Insane (669); Soldiers' Home (828); Soldiers' and Sailors' Orphans' Home (435); Village for Epileptics (81); School for Feeble-minded Youth (1096); Indiana State School for the Deaf (288); Indiana School for the Blind (128); State Prison (1128); State Reformatory (1250); Indiana Woman's Prison (91); Indiana Girls' School (235); Indiana Boys' School (544); total number of inmates in these institutions is 10,340 of which 6365 were males and 3975 were females. The records of the five State penal and correctional institutions show an increase in population in each except the Indiana Girls' School. For the fiscal year ending September 30, 1908, there was expended for the maintenance of these institutions \$1,800,469, which was \$179.69 per capita. The Legislature of 1907 enacted more laws relating to public charities than any two previous General Assemblies. Among these was the new law for uniform management of State institutions. The enactments of 1907 proved during 1908 to be of great value. The Commission appointed for the establishment for the treatment of tuberculosis selected a site at Rockville in Park county. A new law relating to adult probation enacted in 1907 shows excellent results.

POLITICS AND GOVERNMENT. The passage of the county local option bill, at a special session of the Legislature, called by Governor Hanly in September, was the most important event of the year in the political history of the State. The bill is an amendment to the Nicholson Act of 1895, which provided for local option by remonstrance for townships and wards. The new law makes a county dry by the vote of the people. The bill met with bitter opposition throughout the State among members of both political parties. It had, however, the support of Governor Hanly and probably of a majority of the voters of the State. The Legislature met on September 18. When the bill came up for passage on September 21, there was seen one of the most remarkable demonstrations in the legislative history of the State. Hundreds of ministers, members of church organizations and Sunday School workers assembled in the corridor of the State Capitol and engaged in a prayer and song service preliminary to lobbying with the members believed to be opposed to the local option bill. The demonstration was arranged largely by the Anti-Saloon League. The bill was passed by the Senate by a vote of 32 to 17, all the Democrats (14) and three Republicans voting in the negative. The real struggle was in the House, where, after a contest lasting several days, the bill was passed by a vote of 55 to 45. The result was a surprise to both Republican and Democratic managers, who had not expected that the law would pass. Six Democrats voted for it and four Republicans against it. During the progress of the voting charges were made by a member that he had been offered a bribe by the Governor and a Senator to vote for the bill. A committee composed of two Democrats and two Republicans was appointed to investigate these charges. The report of the committee unanimously declared that the Governor had not offered a bribe. It also reported that the evi-

dence did not justify any charge against the Senator. For political events in Indiana connected with the national campaign, see the article **PRESIDENTIAL CAMPAIGN**.

CONVENTIONS AND ELECTIONS. The Republican State Convention met at Indianapolis on April 1, to select delegates to the Republican National Convention and to nominate State officers. A resolution which was said to have been written by Vice-President Fairbanks was passed, calling for the revision of the tariff. Planks were incorporated in the platform condemning child labor, opposing contributions from corporations, reducing army and navy expenditures, and modifying the financial system. The delegates selected for the National Convention were instructed to vote for Charles W. Fairbanks for President. James E. Watson, of Rushville, a representative from Indiana in Congress, was nominated as candidate for governor. The Democratic State Convention met at Indianapolis on March 25. The platform adopted referred to William J. Bryan in most eulogistic terms and instructed the delegates selected to vote for him for President. John Kern was indorsed as candidate for the vice-presidency. A tariff revision plank was adopted, the Fowler and Aldrich financial bills were disapproved, and President Roosevelt was rebuked for attempting to "dictate the nomination of his successor." After considerable discussion the township and ward system of local option was indorsed. Thomas R. Marshall, of Columbia City, was nominated as candidate for Governor.

For reasons connected with local issues of the State, Indiana was counted as one of the most "doubtful" of the States in the presidential campaign and it was one of the hardest fought battle grounds until the issue was finally settled. The State in recent national elections has given its vote by a large majority for the Republican candidate, and it is under ordinary circumstances reckoned as a Republican State. In the election of November 3, the State gave a majority of only 10,731 votes to William H. Taft, while the Democratic candidate for Governor was elected by 14,809 majority and part of the Democratic State ticket was elected. James E. Watson, the defeated candidate for Governor, ran behind Mr. Taft in nearly every county in the State except his own county. The Republican leaders attributed the loss in the State to the weakness of their candidate, to complications arising from the passage of the local option bill and to opposition to Governor Hanly and the measures which he advocated. The actual vote cast for national and State tickets was as follows: Taft, 348,993; Bryan, 338,262; Chafin, 18,045; Debs, 13,476; Marshall, 348,493; Watson, 334,040.

OTHER STATE EVENTS. Violent disturbances occurred in Muncie in January as a result of a strike of the employees of the street railway. There was much rioting and the town was placed under martial law on January 4. Many persons were injured and much property was destroyed during the progress of the strike. (See **STRIKES AND LOCKOUTS**.) A section of the State was invaded on May 10 by a band of "night riders," presumably from Kentucky, who made their appearance in Dearborn and Switzerland counties, destroying beds of tobacco plants and leaving notices warning growers not to attempt making crops in 1908. The new

steel city of Gary celebrated, on July 23, the formal opening of its deep water harbor and received through it the first large shipment of iron ore which is to be manufactured into steel in the great mills erected there. (See **IRON AND STEEL**.) On May 3, the new Aveline Hotel at Fort Wayne was burned and 12 persons perished in the flames. A bronze statue of former President Benjamin Harrison was unveiled at Indianapolis on October 27, and a monument to the heroes of the battle of Tippecanoe was dedicated on the battle ground on November 7. Sixteen monuments, erected by the State on the battlefield of Vicksburg, in memory of the Indiana soldiers who participated in the siege, were dedicated on December 29. A tract of land in the Western part of the State, containing 500 acres was purchased at a cost of \$24,000 for the establishment of a hospital for the treatment of tuberculosis. The year was marked by one of the longest droughts in the history of the State, prevailing very generally and almost without interruption from the middle of August until late in the fall, and seriously affecting crops.

STATE OFFICERS. Governor, Thomas R. Marshall; Lieutenant-Governor, Frank J. Hall; Secretary of State, Fred A. Sims; Treasurer, Oscar Hadley; Auditor, John B. Billheimer; Attorney-General, James Bingham; Adjutant-General, Oran Perry; Superintendent of Education, F. A. Cotton; Commissioner of Insurance, Auditor *ex officio*—all Republicans except Marshall and Hall, Democrats.

JUDICIARY. Supreme Court: Chief Justice, John H. Gillette. Justices, John V. Hadley, James H. Jordan, Leander J. Monks, Oscar H. Montgomery; Clerk of the Court, Edward V. Fitzpatrick—all Republicans.

The State Legislature of 1908 was composed of 27 Republicans and 23 Democrats in the Senate, and 40 Republicans and 60 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES** under the section *Congress*.

INDIAN EDUCATION. See **INDIANS**.

INDIANA UNIVERSITY. An institution of higher learning at Bloomington, Ind., founded in 1820. It is co-educational. The attendance in 1907-8 was 2051. The faculty numbered 80. The library contained 65,000 volumes. The total valuation of buildings and grounds is \$816,084.28; the income for the year ending Sept. 30, 1908, was \$236,657.64, of which \$166,140.83 came from State funds. The endowment is \$700,000. The President is Dr. W. L. Bryan.

INDIANS. Francis E. Leupp, the Commissioner of Indian Affairs, is continuing his policy of educating the Indian along the lines of self-supporting activity. For this end he pays frequent visits to the reservations and makes special efforts to secure for the Indians work in neighboring localities. While serious attention is paid to the problem of aiding the adult aborigines, vigorous attempts are made to train the Indian child for the competitive struggle for existence in which he will have to take part.

This extremely important work is carried on under the immediate supervision of Miss Estelle Reel, Superintendent of Indian Schools. The fundamental axiom on which both her and the Commissioner's educative scheme rests is the

necessity of developing the Indian child along natural lines, instead of vainly attempting to transform him at one bound into a wholly different creature; hence the necessity of modifying current pedagogic methods and of adapting them to the peculiar requirements of Indian schools. Naturally, the most important task is to teach the Indian child to speak English. To attain this end, Miss Reel insists on adequate drill work and on concrete methods. Instruction is begun with illustrations and objects already familiar to the pupil, and as much oral work as possible is required in recitations. Next to English in practical importance, industrial training and domestic economy are given a conspicuous place in the Indian school schedule. While formerly instruction in cookery was confined to having the girls assist the school cook, cooking is now made a distinct subject in the curriculum, and graded lessons are given in the preparation of food. Much has been done to stimulate an interest and understanding of agricultural operations. Not only are the processes of germination demonstrated in the class room, but in the spring the children, under the guidance of the teacher, are directed to perform the actual work of laying out garden plots, preparing the soil, planting, tending the growing plants, and harvesting the crop. Wherever feasible, individual gardens have been allotted to the smaller pupils. Considering that much of the supervision, if not the actual work, of gardening devolves on the average farmer's wife, the course of instruction is extended to girls as well as to boys. In localities where stock raising is the principal industry, special attention is paid to this subject. Instruction in the class room is followed by a visit to the barn or pasture, where practical directions are given as to the management of stock, the characteristics of different breeds and the raising of calves. Progress is reported in dairy work. Both boys and girls are taught to milk and the need for sanitary precautions is insisted upon. The practical operations have been advantageously combined with recapitulation of language and arithmetical study; indeed, in every department an earnest effort is made to correlate different subjects of instruction. Of fundamental importance is the policy of superseding the old boarding schools with day schools. In this way, the objection of Indian parents to the inevitable estrangement from their children resulting from their separation during the entire school term is precluded, and at the same time the plan of education is brought into line with that of our American public school system.

A gratifying result of the Indian school training has been the profitable employment found by large numbers of pupils during the past year through the intermediation of employment bureaus established by Mr. Leupp. A very original scheme for developing already extant Indian activities in an economically fruitful way is that of adapting Indian art to modern usages,—a task delegated to Miss Angel De Cora of the Carlisle Indian School, Carlisle, Pa. Miss De Cora endeavors to perpetuate aboriginal art motives by application to modern articles of use and ornament. The pupils are encouraged to design friezes, borders, rug patterns, etc. The ultimate object is to find a place for Indian art such as the Japanese have found for theirs, and the attitude evinced by Indian art students at

Carlisle seems to justify the most optimistic expectations.

INDO-CHINA, FRENCH. See **FRENCH INDO-CHINA.**

INDO-SCYTHIAN LANGUAGE, or **TOK-HARIC.** A newly discovered Indo-Germanic language of Central Asia, known from a few fragments of a translation of the lost Sanskrit *Maitreyasamiti*, found in Turfan (q.v.). Two dialects seem traceable, one characterized by case-endings of nouns, and the other by postpositions (e.g., ablative *paltkas* ["knowledge"] as compared with *palsko-mem*). The verb is yet represented only scantily, though stem-gradation and active, middle, and passive voices seem to exist. By far the most striking feature of the language lies in the fact that in phonology it belongs to the *centum*-group, or the European division of Indo-Germanic, instead of to the *satam*-group, or the Asiatic division (cf. *kandh*, *kante*, "hundred," with Latin *centum*, but Sanskrit *śatam*; *yakwe*, "horse," with Latin *equus*, but Sanskrit *āśva*). This phenomenon of finding a single Indo-Germanic language in Central Asia showing in phonology the one characteristic hitherto supposed to be distinctively European is nothing short of astounding. Other phonological peculiarities of the dialect are the change of Indo-Germanic dentals into palatals (*pācar*, "father," Sanskrit *pitar*, Latin *pater*) and the change of *mediæ* to *tenues* (*ckācar*, "daughter," Greek *θυγάτηρ*). The latter change finds its analogue in the Indian dialect of *Čili-kāpāišāci*. Consult Sieg and Siegeling, "Tocharisch, die Sprache der Indoskythen," in *Sitzungsberichte der königlich preussischen Akademie der Wissenschaften*, 1908, pp. 915-934.

INDUSTRIAL ARBITRATION AND CONCILIATION. See **ARBITRATION AND CONCILIATION, INDUSTRIAL.**

INFANTRY. See **MILITARY PROGRESS.**

INGALLS, CHARLES RUSSELL. An American jurist, died at Troy, N. Y., on May 28, 1908. He was born at Greenwich, N. Y., on Sept. 14, 1819, and after studying law in his father's office was admitted as an attorney in 1844 and as counsellor in 1847. In 1853 he represented Washington County in the New York Assembly. He removed to Troy in 1860, in 1863 was elected a justice of the Supreme Court of New York, was reelected in 1871 and 1885, and retired, having reached the age limit, on Jan. 1, 1890. He served by designation as judge of the Court of Appeals in 1870 and on the general term of the Supreme Court in the First Department in 1877-78. Judge Ingalls was well known for his learning and fairness and for the lucidity of his opinions and charges to juries.

INITIATIVE AND REFERENDUM. A feature of the present political development in the United States is the growth in the use of the initiative and referendum. In 1908 Maine, Michigan, Missouri, and North Dakota voted on their adoption in State matters, the Maine law extending its application also to local affairs. Since the adoption of these devices for securing direct expression of the people's will by South Dakota in State affairs, in 1898, they have come into use in many States, and at an accelerating rate. Utah followed in 1900, Oregon in 1902, Montana in 1906, and Oklahoma in 1907. In 1907 also Iowa, Montana, and South Dakota adopted the initiative and referendum for use

in local affairs. While the referendum has long been in use in local affairs, as well as in State affairs, the adoption of the initiative, making it possible for voters to frame and pass new laws without reference to representative legislative bodies, is a recent and striking evidence of the growth of democratic institutions.

The referendum vote on the authorization of the initiative by constitutional amendment was carried in Maine on Sept. 14, by 18,000 votes, in a total of 85,700, carrying every county in the State. The provision requires 12,000 signatures for an initiative petition and 10,000 for the referendum on any act or resolution passed by the Legislature. The law provides for the adoption of the initiative and referendum by any town or city by a majority vote. In Missouri also the initiative and referendum were adopted by constitutional amendment ratified at the November election, while in Michigan the new constitution, ratified at the same time, authorizes the use of these methods of legislating. The referendum is granted on all municipal legislation, and its use on franchise grants is made compulsory. The peculiar feature of the Michigan law is that while twenty per cent. of the voters are required for a petition to initiate a constitutional amendment, such a proposal may be vetoed by a majority of the Legislature. In Ohio, the vote in November on the adoption of the initiative and referendum by constitutional amendment gave a majority against the proposal. However, the friends of the measure believed this result was due to a lack of sufficiently general understanding of these principles, and have drawn another amendment for introduction in the 1909 Legislature. In August, the Supreme Court of Oklahoma upheld the constitutional provisions for initiative and referendum, the same having been made effective by a legislative act of April, 1908, and not being in conflict with that provision of the United States Constitution guaranteeing every State a republican form of government. In Oregon, where the principle of direct legislation has been most effectively used, the people voted, on June 1, on 19 measures, of which 12 were adopted. Woman suffrage was the most notable of the proposals rejected, while among those adopted were the right of recall and proportional representation. The adoption of these two principles illustrates how the initiative and referendum favor an increased use of governmental devices securing a more effective expression of popular will. The right of recall enables a proportion of the voters to secure the recall of an elective officer and the holding of a new election, while proportional representation provides for minority representation in legislative bodies. In Oregon the farmers have developed a strong organization for the effective use of the initiative and referendum in furthering their demands for equitable taxation. The platform of the Independence Party in 1908 favored these principles, along with the right to recall and direct primaries (q.v.). Bills favoring their use in national affairs were introduced in Congress early in the year. A movement favoring the adoption of the initiative and referendum in local affairs is the spread of the commission form of government..

The success of the direct legislation in Switzerland, where first adopted, was attested by John A. Hobson, English economist and publicist. After a first hand study he summarized the advantages as follows: (1) It provides a remedy

for intentional or unintentional misrepresentation on the part of the legislatures; (2) it enhances popular confidence in the stability of law; (3) it eliminates much waste of political energy; (4) but most of all, it renders an inestimable service in the training given the average citizen in the art of self government. See PRIMARIES, DIRECT.

INJUNCTIONS. The most discussed labor event of the year was the controversy over the rightful use of injunctions in labor disputes. In 1906 the American Federation of Labor had instituted a boycott against the Buck's Stove and Range Company, as a result of a dispute between the company and the Metal Polishers' Union. This boycott was carried on by publishing the company's name in the "unfair" and "We don't patronize" lists of *The American Federationist*. The company brought suit in the Supreme Court of the District of Columbia for an injunction restraining the Federation, its officers, and members, from prosecuting the boycott. On Dec. 18, 1907, Judge Gould of that court issued a temporary restraining order, to become operative Dec. 23. This injunction was made permanent Mar. 23, 1908. In issuing the injunction, Judge Gould cited opinions of Judge Wm. H. Taft in boycott cases, and ventured the opinion that, although individuals may refuse to patronize a firm, the inciting of others to do so constitutes a conspiracy in restraint of trade. The injunction restrained the defendants from "publishing or otherwise circulating, whether in writing or orally, any statement or notice of any kind or character whatsoever, calling the attention of the complainant's customers, or of dealers or tradesmen, or the public, to any boycott against the complainant, its business or its product," and from advising any one not to purchase or handle the complainant's goods or by any other form of representation or statement interfering with his business. President Gompers of the Federation characterized the injunction as the most sweeping invasion of the liberty of the press and of the right of free speech ever issued. It was pointed out in press comments that the language of the injunction would prevent the publication of any society or organization, as well as ministers and social workers representing religious, charitable, or good-government societies, from striking at obnoxious business or business devices.

Recognizing that the source of relief from present conditions lies in Congressional action, Mr. Gompers and other labor organizers made an effort to secure favorable legislation at Washington. President Roosevelt, in messages, had urged upon Congress the "need of some action in connection with the abuse of injunctions in labor cases." He said, "It is all wrong to use the injunction to prevent the entirely proper and legitimate action of labor organizations in their struggle for industrial betterment, or under the guise of protecting property rights, unwarrantably to invade the fundamental rights of the individual." About the same time that Mr. Gompers's bill was introduced, another was presented by the Civic Federation, headed by Hon. Seth Low, incorporating moderate changes in the manner of issue of injunctions and of punishment of their violation. The controversy was so determined that inaction resulted. The chief opposition to the demands of the labor leaders came from the National Association of Manu-

facturers and its subsidiary, the National Council of Industrial Defense. In the fall of 1907, the Association had decided to devote \$500,000 annually for three years to "a campaign of education," the National Council being formed for this purpose. The personal animus between its president and the head of the Federation of Labor led their organs, *American Industries* and *The American Federationist* respectively, to express views having an air of undignified hatred.

Having failed in Congress, the labor leaders went before the national party conventions. The Republican platform, after expressing confidence in the integrity of the courts and insisting "that their powers to enforce their process . . . be preserved inviolate," declared that the rules of procedure "with respect to the issue of the writ of injunction should be more accurately defined by statute, and that no injunction or temporary restraining order should be issued without notice, except where irreparable injury would result from delay, in which case a speedy hearing thereafter should be granted." The Democratic platform likewise expressed confidence in the courts, but declared that "if judicial processes may be abused we should guard them against abuse." It declared that "experience has proven the necessity of a modification of the present law relating to injunctions" and favored providing for trial by jury in cases of indirect contempt. With reference to the issue of injunctions in industrial disputes, it declared "that injunctions should not be issued in any cases in which injunctions would not issue if no industrial dispute were involved." The labor leaders accepted the latter declaration as the more favorable to their interests and entered into the campaign in behalf of Wm. J. Bryan.

The nomination of Wm. H. Taft as the Republican candidate for the Presidency was another reason for trade-union agitation of the injunction matter, for when a United States Circuit judge, Mr. Taft had issued certain injunctions, which won him the title of "father of injunction." Taft's injunction record was much discussed, the candidate himself expressing perfect willingness to stand or fall by it. It may be briefly stated. In 1893, the engineers on the Toledo, Ann Arbor and Michigan Railroad went out on strike; the chief of the Brotherhood ordered engineers on connecting lines not to handle freight cars from that road. Judge Taft issued a temporary injunction restraining the engineers from carrying out this order. This was the first judicial decision defining the rights and duties of organized labor in interstate commerce. It did not deny the right to strike, but forbade interference with interstate commerce, as conspiracy against federal law. This virtually declared the boycott illegal in interstate commerce. This decision has since been quoted frequently. In 1894, the American Railway Union, led by Eugene V. Debs, began a strike against the Pullman Company, and all railways were ordered to boycott Pullman cars on penalty of a railway strike if they did not do so. The Cincinnati Southern refused. Frank Phelan began to organize a strike among its employees. Judge Taft issued an order restraining him and afterward sentenced him to six months in jail for contempt in disobeying the order. Here again Mr. Taft upheld the right of the workmen to quit work, but forbade the use of the boycott in interstate commerce. Speaking before a large audience at Cooper Union, New York City, early

in 1908, Mr. Taft defended the injunction against the charge that it gave to courts not only judicial but also legislative and executive powers. He said that prevention of injury to business, to property, and to life, even at the cost of occasional injustice, was preferable to the alternative of curing wrongs, after harm had been done. He admitted, however, that the use of the injunction in labor disputes had been abused and expressed sympathy for an amendment to the law providing that no temporary injunction should be issued until after notice and a hearing. He preferred also that proceedings for contempt of an injunction order be held before some other judge than the one issuing it.

In the course of the agitation carried on by President Gompers and other officers of the Federation, they were alleged by the Buck's Company to have violated their injunction. They were therefore, on July 20, ordered by the court to show cause on September 8 why they should not be punished for contempt, because of such violation. The contempt proceedings were, however, postponed; it was alleged that the delay was due to the desire of Republican leaders to have the matter settled after the close of the campaign. The decision, finally made by Judge Daniel T. Wright, near the end of December, found the defendants, President Gompers, Vice-President Mitchell, and Secretary Morrison, of the Federation, guilty and sentenced them to imprisonment for one year, nine months and six months, respectively. The court found that there had been numerous violations of the injunction. The opinion specified that between the rendition of Judge Gould's opinion (Dec. 17, 1907), and the date when the injunction became effective (Dec. 23), Mr. Gompers had issued an edition of *The American Federationist* in which the Buck's Company was included in the "Unfair" list. Many copies of this issue did not reach their destination until after Dec. 23. In the second place, Mr. Gompers had repeatedly discussed the injunction in his periodical in such a way as to incite his partisans to prosecute the boycott. The court found that repeatedly statements were made in bold-faced type announcing that the Federation was prohibited from "publishing the fact that the Buck's Stove and Range Company is on the unfair list of organized labor," or that "this injunction cannot compel union men or their friends to buy Buck's stoves and ranges." As against Vice-President John Mitchell, it was shown that he was not lawfully minded toward injunctions by the following quotation from a book published by him in 1903: "When an injunction forbids the doing of a thing which is lawful, I believe that it is the duty of all patriotic and law-abiding citizens to resist, or at least to disregard, the injunction." Moreover, Mr. Mitchell had presided at a meeting of the United Mine Workers of America in January, 1908, when the Buck's Company was by formal resolution placed on the unfair list. The labor leaders at once appealed from the decision to the Court of Appeals of the District of Columbia.

The attitude of the defendants in this case, partially shown in the foregoing quotation from John Mitchell, was that the fundamental issue was the right of organized labor to use the constitutionally guaranteed rights of freedom of speech and of the press in prosecuting its struggle for better conditions. Having been restrained in the exercise of what they considered

perfectly lawful activities, they deemed it best, in the interest of labor's welfare, to defy the order and accept the consequences. By this means, they hoped in the end to get from the Supreme Court of the United States a definition of the rights of the labor press in trade disputes. Public comment generally sustained the court in finding the men guilty of contempt, for the question before the court was not the rightfulness of the injunction, but only its violation. Since, however, the main object in the case was to make an issue of the legal rights of the defendants, opinion generally condemned the severity of the sentences.

Following the condemnation many trade unions passed resolutions sustaining the attitude of their leaders and condemning that of Judge Wright. On Dec. 28, President Gompers notified union labor that, pending an effort to secure action from Congress, the "Unfair" list in *The Federationist* would be discontinued. See also **BOYCOTT**, and **LABOR**, **AMERICAN FEDERATION OF**.

Naturally, the subject of the injunction received extended discussion at the annual convention of the American Federation of Labor in November. The more radical members favored a declaration that "it is our duty to disregard them [injunctions] and we recommend that such be our action, taking whatever results may come." However, the resolution finally adopted was less direct in form: "We will exercise all the rights and privileges guaranteed to us by the constitution and the laws of our country, and insist it is our duty to defend ourselves at all hazards," taking the consequences that may result. This resolution, like the writings and speeches of prominent labor leaders during the year, lays stress upon the "rights" and "liberties" guaranteed by the laws, that is, freedom of speech and of the press, which the injunction in the Buck's case restricted. This appeal, however, did not strike an enthusiastically responsive chord in public sentiment, for it was contended that the rights restricted were only limited by the desire of the court to preserve equally important rights for a business firm. The fight made in Congress earlier in the year was renewed in the second session of Congress. In a statement issued on Dec. 27, President Van Cleave stated that there were already before the Judiciary Committee of the House ten bills intended to restrict the use of writs of injunction. He therefore gave notice that the fight made early in the year would be renewed.

Numerous less well-known injunctions were issued or denied during the year, some of which were of importance. Judge Van Devanter of the United States Circuit Court of the Eighth Circuit, in September, granted to the St. Louis, Iron Mountain and Southern and three other railroads operating in Arkansas an injunction against the Arkansas State Railroad Commission, restraining the latter from enforcing the State two-cent fare law and from interfering with the roads in increasing freight rates on interstate business. The court held the two-cent rate to be unprofitable and therefore unreasonable, and that the laws of Congress should take precedence over State laws so far as interstate business is concerned. The Chicago Typographical Union was fined for violating an injunction by the Supreme Court of Illinois. The injunction forbade picketing. The Union appealed, but

meanwhile continued peacefully to picket. The court held that the taking of an appeal does not justify the violation of an injunction. Certain theatrical managers in New York City secured from a city judge injunctions restraining the police from enforcing the laws against Sunday concerts and theatrical performances. The ground on which the injunction was issued was that the acts forbidden by the law are not crimes. The Appellate Division of the Supreme Court of New York in May declared the injunctions to be illegitimate, on the ground that a police officer could not be restrained from enforcing the law so long as the law itself remained valid. The Switchmen's Union at Buffalo decided to strike: the Delaware, Lackawanna and Western Railroad Company sought to enjoin the members of the Union from doing so, on the ground that by an agreement they had bound themselves to work for the company on certain conditions until an assigned future date. The United States Circuit Court refused the injunction on the ground that members of labor organizations may peaceably withdraw from employment, even though such withdrawal involves a breach of contract, and on the ground that in this case no violation of property rights was shown. The Sailors' Union of the Pacific was prohibited by the United States Circuit Court of Northern California from interfering with the business of the Hammond Lumber Company. The Union had gone on strike, picketed the waterfront, patrolled the coast and used violence and threatening language against boat crews of the company: all of these activities were enjoined. The Union contended on appeal that the court had exceeded its legal powers in restraining members from doing what they had a legal right to do. The Circuit Court of Appeals sustained the injunction, on the ground that its object was not to prevent the members of the Union from exercising any legal rights, but "to prevent acts of lawlessness, of violence, of insult, and of intimidation." Two cases decided by the Massachusetts Supreme Court attracted considerable attention. A member of the Carpenters' Union at Lynn was discharged by a firm belonging to the Master Builders' Association. The Union ordered a strike to compel his reinstatement. The Association was granted an injunction restraining the Union from striking, picketing, or boycotting so as to interfere with the business of any Association member. The court held that the combination to strike was, in this case, not to further the common interests of workmen, but was a sympathetic strike in behalf of one employee, and that it involved interference with the employer's business in that the Union attempted to determine who should be employed. Unionists made much of this decision as a long step in the direction of limiting the right to strike. In the other case a Boston Bricklayers' Union was enjoined from fining two of its members, who, contrary to the rules of the Union, had refused to go on a strike when ordered to do so. The court held that the rule of the Union fining members for not striking when ordered to do so was contrary to public policy and interfered with the employer's right to a free labor market. There was a strong minority opinion in this case, which stated that "the law does not do so vain a thing as to allow the formation of labor unions and to declare their right to initiate and by lawful means to carry on a justifiable strike, and then refuse them the use of the only

practical means by which their acknowledged rights may be secured."

INLAND WATERWAYS. See CANADA, and UNITED STATES, paragraph *Internal Waterways and National Resources*.

INOUE, HIKARU. A Japanese soldier, died in Kioto on Dec. 16, 1908. He was born in the province of Choshu in 1851 and enlisted in the army in 1871, rising by reason of his courage and capacity to the rank of lieutenant-general. During the Chinese-Japanese war in 1894 he was chief of staff of the 2d army, which took Port Arthur. He commanded the 12th (Kokura) division in the Russo-Japanese war.

INSANITY. Ohio reports the number of insane as 9,961, on Nov. 15, 1907, being a net increase of 235. Minnesota reported the number of her insane on July 31, 1908, as 4,560, a net increase of 181. California reported 6,232 insane, besides 327 patients on parole. Her normal increase has been 150 annually, but last year, ending June 30, 1908, brought her a net increase of 331. Iowa on June 30, 1908, reports a total of 4,069 insane in State hospitals, 798 in county almshouses, and 608 in private houses, in all 5,475. The net annual increase was 172. Secretary Butler of Indiana announces on Sep. 30, 1908, a total of 5,276 insane, of whom 4,236 were in State hospitals, 337 on parole, 542 in county poor houses, 43 in county jails, and 118 at their homes. Secretary Graves of Illinois reported on June 30, 1906, 9,326 patients in the State hospitals, and 2,234 in the county almshouses; a total of 11,560 insane. The annual increase in Illinois is 317. Commissioner Ferris of New York reported the number of committed insane in that State as 29,421, on Sep. 30, 1908, including 1,375 in the two hospitals for the criminal insane. There were also 1,035 in the private licensed houses, making a total of 30,456 registered cases in the State. Last year the total admissions reached 6,800, the net addition being 1,246, as against 715 of previous years. The overcrowding amounts to over 2,000 patients in the 15 hospitals, although increased accommodations provided during the year totaled 2,055 beds. Expecting a net increase of 1,200 patients during the present year, Ferris calculates that on Oct. 1, 1909, there will be a deficiency of 1,753 beds, in spite of the completion of constructions under way and planned. The Creedmoor Rifle Range was obtained as a site for a new hospital. Two new outing camps were used with good results during the summer. The chief matters of legislation secured were the act providing for the reception of voluntary cases into the State hospital, and that extending the possible parole of a recovering patient to six months. The per capita cost of maintenance was \$186.63. The rate of recovery based on admissions was 24 per cent.

The report of the commissioners in lunacy for England for 1907 shows a diminution in insanity in England and Wales. The total insane under certificate Jan. 1, 1908, was 126,084, due to an increase of 2,096. The report for Scotland shows 17,414 registered insane and 494 non-registered, on Jan. 1, 1908, making a total of 17,908. Of these, 2,633 were private, and 15,226 public cases, revealing a net increase of 293 for the year. The recovery rate for the year was 38.2 per cent. for private, and 40 per cent. in pauper cases. The per capita cost was

\$220.38. In Ireland the number on January 1, 1908, was 23,718, of whom 3,053 were in work-houses. The recovery rate was 38.6. The death rate was 7.7.

INSECTS. See ENTOMOLOGY.

INSECTS AND THE PROPAGATION OF DISEASE. The rôle played by the common house fly in the dissemination of disease assumes greater importance as the matter is more deeply studied. Diarrhœal disturbances and typhoid fever are most frequently carried, and a close relation between their prevalence and that of flies exists. Scarlet fever, tuberculosis, and diphtheria may be fly-borne. Newstead of the Liverpool School of Tropical Medicine reported an investigation into the habits of this household pest. Their breeding places were found to be in horse manure, or a mixture of this with cow dung, fermenting hops, ash pits containing fermenting vegetable matter, and all temporary collections of fermenting matter. Very dry or wet ashes or moist cow dung does not harbor them. When fowls, other than ducks and geese, were allowed freedom in yards, relatively few larvæ and pupæ were found. The avidity with which fowls devoured these latter proves their usefulness in keeping down the number of flies. Flies feed on moist decaying vegetable matter, manure, (animal and particularly human), straw mattresses, old cotton garments and sacks and waste paper, bread, and decayed fruits. The life cycle of the fly in all kinds of fermenting material is reduced to the minimum of ten to fourteen days, while in the absence of such artificial heat the cycle may take three to five weeks or longer, according to the temperature of the outside air. Excessively warm weather is not necessary for breeding. Various boards of health distributed literature warning the public against fly-borne diseases, and advising measures to discourage their spread. These measures consisted in prompt destruction of all waste animal or vegetable material, covering and disinfecting temporary and unavoidable collections of garbage, careful disposal of manure in stables, etc. People were instructed to keep food screened from flies at all times, to keep the sick protected from them, to screen all windows and doors, and to burn pyrethrum powder in the house. The part played by mosquitoes in the spread of malaria and yellow fever is now well known to the public. The facts in connection with the propagation of disease by the mosquito and the fly were concisely summarized in simple form in *Farmers Bulletin*, No. 155, U. S. Department of Agriculture (Washington, 1908), by Dr. L. O. Howard, under the title "How Insects Affect Health in Rural Districts." This deals particularly with the relation of mosquitoes to malaria and of flies to yellow fever and typhoid. The fly was also discussed in an important series of papers by C. Gordon Hewitt published in the *Quarterly Journal of Microscopical Science* on "The Structure, Development and Bionomics of the House Fly." The rôle of the flea in propagating the plague is noted under that heading. The connection between sleeping sickness and the tse-tse fly is noted under SLEEPING SICKNESS.

INSTITUTE OF AGRICULTURE. See AGRICULTURE.

INSURANCE. LIFE INSURANCE. Since the investigations of the Armstrong Committee of the New York Legislature in 1905-6, there has been such a flood of legislation throughout the

United States as almost to transform the insurance business. The New York State revised laws, framed under the direction of the above-named committee, were taken as models, but many States went considerably beyond them. Models were also drawn by a conference of governors, attorney-generals, and insurance commissioners in 1906. As a result New York State companies, beginning with 1908, were compelled to provide features in policies written in Illinois, Massachusetts, Michigan, Minnesota, New Jersey, North Dakota, and Tennessee that are not necessary in New York. In 1908 Texas carried restrictive legislation to such an extreme that 23 companies left the State. The feature of the Texas law most objected to was the requirement that three-fourths of the earnings in Texas be invested in that State. Louisiana provided for the organization of industrial, stock, and mutual life insurance companies in that State; and provided that failure on the part of fire insurance companies to settle claims within a certain time shall be punishable by a penalty of 12 per cent. of the loss. Ohio passed a comprehensive and efficient insurance law. South Carolina organized a new Insurance Department, with power to issue and revoke licenses to do an insurance business in the State.

On Feb. 3, Governor Hughes caused the publication of the report of Mathew C. Fleming, appointed to investigate charges against State Superintendent of Insurance Otto Kelsey. The report criticized the latter for failure to institute certain reforms, and for inaction in regard to certain abuses. The report itself was severely arraigned by President Charles A. Peabody of the Mutual Life Insurance Company on the ground that, in attempting to show incompetency and neglect of duty on the Superintendent's part, it used "insinuation with no specific charges," and in so doing reflected on the good name of his company. In December it was announced that Otto Kelsey, against whom as Superintendent of Insurance in New York Governor Hughes had made a stubborn but futile fight, at the expiration of his term of office had accepted an appointment as First Deputy State Comptroller, at an increased salary. See NEW YORK.

Early in the year the New York Attorney-General, Wm. S. Jackson, declared his intention of applying for a receivership for the Mutual Reserve Life Insurance Company on the ground of insolvency. Later a group of policy holders made such an application, and it was granted Feb. 16. Two months later the company was ordered dissolved, with two sets of receivers, appointed respectively by the State and Federal courts. In September a majority of the stock of the Washington Life Insurance Company of New York was acquired by the Pittsburg Life and Trust Company of Pennsylvania. A sensation was caused in insurance circles by the removal of the assets and records of the former company to Pittsburg during the night of Dec. 31, 1908. Steps were taken to compel the restoration of these documents to New York jurisdiction as a means of protecting the interests of policy holders. In August the sale of a majority of the stock of the Provident Savings Life Assurance Society brought about a reorganization in that company. A further change in control and in management followed

in October and in December respectively, the condition of the company being already much improved by the close of the year.

Two matters much discussed in insurance circles during the year were taxation of insurance company assets and revision of insurance laws. A report, published early in the year by President John M. Taylor of the Connecticut Mutual Life Insurance Company, showed that in 1906 the States had collected \$10,150,000 in taxes from 42 life insurance companies: this sum was equal to 26 per cent of the amount paid to policy holders. Such taxes greatly increase the cost of insurance, and reduce the numbers seeking its benefits, as well as the amount of these latter. Whether taxation is good policy is therefore a matter of concern not only to individual policy holders, but concerns also the public authorities, who must care for dependents. The zeal of insurance reformers has brought about a vast deal of restrictive legislation in the past two years. The companies have found that the existence of 46 separate authorities with different laws has greatly complicated the insurance business, and they are demanding either more liberal and uniform laws or legislation and supervision by the national government only. President Kingsley of the New York Life Insurance Company advocated speedy revision of the Armstrong laws of New York, especially those sections limiting the amount of reserve, prohibiting insurance of under average risks, and restricting the amount of expenses and of new business. President Ide of the Home Insurance Company enumerated certain requirements of the new laws which tend to cripple the business; among them were the requirement of uniform standard policies, uniform commissions to agents, limitations of investments, a cumbersome election method, limitation of new business, and the granting of extraordinary discretionary power to the insurance commissioner.

The condition of companies doing business in New York State on Dec. 31, 1907, and Dec. 31, 1908, was shown in reports issued by the State Superintendent of Insurance in Oct., 1908, and Jan., 1909. The insurance in force with the fifteen New York State companies at the close of 1907 was \$5,796,291,000, and at the close of 1908, \$5,629,721,000, as compared with \$6,152,317,000 in 1905 before the new insurance laws became effective. That in force with companies of other States doing business in New York rose from \$4,401,522,000 in 1905 to \$4,608,434,000 in 1907 and \$4,849,478,000 in 1908. The new laws by setting a limit to the amount of new business that may be written in any one year have greatly checked the growth of the New York State companies. Whereas there was a net annual gain in the amount of insurance in force in the several years preceding and including 1904 of \$473,000,000, there has been a net annual loss since then of \$18,000,000. Although the amount of new business written a few years ago was a billion of dollars annually, the amount in 1907 was only \$455,000,000 and in 1908 only \$465,000,000, or less than one-half the previous sums. This has brought it about that in each of the three largest companies of the State the amount of insurance terminated in 1907 and 1908 exceeded the amount of new business. This condition does not obtain, however, in the companies of other States, which reported terminated insurance of \$324,090,000 in 1907 and new business of \$568,592,-

000. These companies wrote \$595,390,000 new business in 1908. The total assets of companies doing business in New York State Jan. 1, 1908, were \$2,917,908,000, of which 57.7 per cent. was credited to New York companies. The liabilities were \$2,771,917,000, of which 59.4 per cent. were charged to New York companies. These included \$145,991,000 surplus and special funds. The gross income was \$629,629,000, of which 56 per cent. went to New York companies; of the total income \$485,632,000 came from policy premiums. Total disbursements were \$421,229,000. The terminated policies aggregated 443,379, or 8.33 per cent. of the total number, and \$862,529,000, or 8.4 per cent. of the total value. The proportions, as regards value, terminated by various causes were: by death, 14.8 per cent.; by maturity, 3.6 per cent.; by expiring, 14.4 per cent.; by surrender, 24.5 per cent.; by lapse, 35.7 per cent.; and by change, 7 per cent.

FIRE INSURANCE. The reports of the New York Superintendent of Insurance, covering 174 fire insurance companies doing business in that State in 1907, which include all the important companies of the United States and Canada, showed that they held assets valued at \$432,054,000 on Jan. 1, 1908. The amount of insurance in force was \$35,448,000,000. The amount written during the year was \$30,161,583,000, against which premiums aggregating \$352,702,000 were charged, or an average of \$1.02 for each \$1,000 of risk. The actual amount received in premiums was \$253,668,000, and the amount paid out on fire losses was \$117,772,000. Other disbursements included \$55,461,000 for commissions and \$18,406,000 for salaries, the total disbursements being \$246,566,000. In Jan., 1909, the Superintendent issued a preliminary report for 1908 showing a total fire loss in the United States and Canada of \$238,562,000 during the year, and an aggregate loss during the last six years of \$1,497,660,000, or one quarter billion dollars each year. A report of a committee of the National Board of Fire Underwriters shows that in the five years preceding 1908 the average annual per capita loss from fire in this country was 3.02 as against 33 cents in six European countries; in 252 American cities it was \$3.10, as against 61 cents in 30 European cities. The committee found that the number of fires per 1,000 of population in the American cities was 4.05 as against 0.86 in the European. The causes of these differences are found in (1) the responsibility of European tenants or landlords for fire loss to others caused through their negligence, and absence of such responsibility in America; (2) differences in building methods; (3) presence in Europe of many regulations with reference to explosive, inflammable, or dangerous materials, and their absence in America.

INTERNAL REVENUE. See LIQUORS, FERMENTED AND DISTILLED.

INTERNATIONAL ARBITRATION. International arbitration has ceased to be an academic question, and has entered the realm of practical politics and propaganda. During the past eighteen months the main issues raised for consideration have involved detail rather than principle. In the narrower sense of the phrase, meaning the submission by two or more nations of a difference or dispute to be determined by a disinterested third party, international arbitration is neither novel nor impractical. During

the 19th century no less than 195 international controversies were so settled, a number now increased to over 240, the United States being a party to more than 60, and Great Britain to more than 70. The term has been more broadly construed since 1899, the date of the First Hague Conference, to include the work of "mixed commissions" and "commissions of inquiry" as well as the development of international law expressed in international tribunals and courts. Notable achievements under these heads were the settlement of the Alaskan Boundary question by a mixed commission, and of the North Sea (Dogger Bank) incident by a commission of inquiry. During this later period 75 treaties of arbitration were negotiated (54 before the second Hague Conference in 1907) by the leading nations of the world, Great Britain being a party to 12; the United States, to 12;* Italy, to 8; France, to 10; Spain, to 14; Portugal, to 11; Denmark, to 8. (See *The American Journal of International Law*, Vol. II; 823.)

While some of these treaties exclude questions affecting "national honor," they nevertheless cover a broad field.

Two International treaties were ratified in 1902. The first, between Argentine Republic, Bolivia, Dominican Republic, Guatemala, Mexico, Paraguay, Peru, Salvador, and Uruguay, provided for the obligatory arbitration by The Hague tribunal of all disputes excepting those affecting national honor or independence. The other was between the same countries and the United States of America, Colombia, Costa Rica, Chile, Ecuador, Haiti, Honduras, and Nicaragua and provided for the reference of all pecuniary claims to The Hague. These two treaties, now in force and operation, provide a working basis for the leading powers of the Western hemisphere to adjust the bulk of their difficulties by a simple automatic reference to The Hague. Thus the principle of obligatory arbitration which was unanimously endorsed (except for Turkey and Japan) by all the governments represented in the Second Hague Conference is being worked out on a fairly broad and representative basis.

On Dec. 20, 1907, the Central American Peace Conference which had been in session in Washington concluded a treaty of peace and protocols, one of which provided for the establishment of a permanent court of justice to which the five nations (Costa Rica, Salvador, Honduras, Guatemala, and Nicaragua) bound themselves "to submit all controversies or questions which might arise among them, of whatsoever nature, and no matter what their origin may be, in case the respective departments of foreign affairs should not have been able to reach an understanding." This was carrying the idea of obligatory arbitration one degree further. The Court was duly installed May 25, 1908. (See *CENTRAL AMERICA*.) The establishment of this Central American Court lends additional interest to the growing discussion of the court of arbitral justice proposed by the Second Hague Conference.

* At the date of going to press the total number of treaties signed by the United States amounted to 16, being with Great Britain, France, Norway, Sweden, Spain, Portugal, Switzerland, Denmark, Italy, Mexico, Netherlands, Peru, China, Argentine Republic, Uruguay and Brazil.

Among the more important events of the past twelve months in the history of the movement for international arbitration are to be noted the agreement between France, Great Britain, Russia, Germany and Norway, guaranteeing the neutrality of Norway (q. v.); between Germany, France, Denmark, Great Britain, Netherlands and Sweden, to respect each other's territory on the North Sea (See *GERMANY*.); between Germany, Denmark, Russia, and Sweden, to respect each other's territory on the Baltic Sea. (See *GERMANY*.); the exchange of notes between Secretary Root and Ambassador Takahira relating to Far East; the agreement between United States and Great Britain to refer the Newfoundland Fisheries question to The Hague; and the creation of a Joint High Commission to settle future differences between United States and Canada, the latter not involving The Hague (See *CANADA*, and the *UNITED STATES*.), and between Germany and France—agreeing to arbitrate the Casablanca incident growing out of the flight of French soldiers to German soil. See *FRANCE* and *MOROCCO*, paragraphs on *History*.

There were a number of notable events during 1908 which have worked for the creation of a greater friendliness among the nations and for the creation of a sentiment in favor of international arbitration. Chief among these events are: The action of the United States, after open refusal of the Castro government in Venezuela to arbitrate, in refraining from the use of force to collect American claims; the fact that the Balkan crisis did not lead to war and seems likely to be composed without bloodshed; the decision of the British government to create an "International Hospitality Fund"—the first of its kind; the reception by the King and Queen of England of a deputation of the Universal Peace Congress in July, and governmental courtesies accorded the meeting of the Interparliamentary Union in Berlin; the exchange of visits between German and English editors, and the similar exchange between clergymen of the same countries; the international exchange of professors under which Nicholas Murray Butler and other eminent educators have lectured in foreign universities; and the cruise of the American fleet around the world, bringing the most distant parts of the earth into closer touch with the United States.

There has been an encouraging growth of public sentiment in favor of international arbitration on the part of business men and business organizations. The National Board of Trade views with satisfaction "the growing interest among business organizations and business men in the subject of international arbitration as a means of preventing recourse to arms amongst nations for the settlement of their misunderstandings and differences, and reaffirms its belief that the destruction of wealth and the human misery attendant upon warfare, may be greatly diminished by the extension of the method of arbitration in the settlement of disputes between nations." Moreover, the Board formally expressed its gratification at the treaties of arbitration, to which the United States is now a party, with a hope that further treaties of the same kind may be negotiated and that eventually their scope may be broadened, and expressed the hope that the United States government may find it expedient to initiate steps to bring about, by diplomatic negotiations, the

organization of the proposed International Court of Arbitral Justice.

The Committee on Business Organizations of the Mohonk Conference reported at the last meeting that with one exception all the organizations which were reported last year as having endorsed its circular, entitled "Why Business Men should Promote International Arbitration," have consented to become coöperating and corresponding organizations, and to these have been added 37 others, making a total of 166, representing 128 cities in 42 States and Canada. All of these organizations are leading or fairly prominent bodies, and few are in cities of less than twenty-five or thirty thousand inhabitants.

The colleges are also giving an increasing attention to the question. About two hundred may be said to give annual recognition to the subject. These include the large institutions like the Universities of California, Illinois, Chicago, Pennsylvania, and others. The College of the City of New York has established May 18th as "Arbitration Day," and given it a regular place in the college calendar. The Intercollegiate Peace Association also reports that its work is meeting with more than usual success. Along this line, it is interesting to note that the Association of Cosmopolitan Clubs, having chapters in 17 large American universities, made up mostly of foreign students with some Americans, at its last annual meeting allied itself with the arbitration movement.

The second Hague Conference unanimously adopted the following recommendation: "Finally, the conference recommends to the powers the assembly of a third peace conference, which might be held within a period corresponding to that which has elapsed since the preceding conference, at a date to be fixed by common agreement between the powers, and it calls their attention to the necessity of preparing the programme of this Third Conference a sufficient time in advance to insure its deliberations being conducted with the necessary authority and expedition.

"In order to attain this object the conference considers that it would be very desirable that, some two years before the probable date of the meeting, a preparatory committee should be charged by the governments with the task of collecting the various proposals to be submitted to the conference, of ascertaining what subjects are ripe for embodiment in an international regulation, and of preparing a program which the governments should decide upon in sufficient time to enable it to be carefully examined by the countries interested. The committee should further be intrusted with the task of proposing a system of organization and procedure for the conference itself."

Already the details of this Third Conference are coming to be discussed and the question is being asked with increasing frequency "Is the conference to be the first step to a confederation—that is to say, a political union of the States with legislative and executive powers—or is it an institution composed of the diplomatic representatives of the various countries with the power to legislate *ad referendum*."

THE MOHONK CONFERENCE ON INTERNATIONAL ARBITRATION continues to be a potent factor in its field. The Fourteenth Annual Conference in its platform especially approved and commended the work of the Second Hague Conference, "which,

revising and perfecting the various Conventions of the Conference of 1899, restricting the use of force in the collection of contract debts, proclaiming unanimously the principle of obligatory arbitration, establishing an international Court of Prize, and declaring in favor of the establishment of a permanent Court of Arbitral Justice, measured a great and welcomed advance towards the regulation of international relations upon the basis of justice, reason and respect for law." It also noted with pleasure the existence of the treaties of arbitration concluded within the past five years and more especially the arbitration treaties concluded between the United States and various nations, expressing "the hope that the peaceful and judicial settlement of international difficulties by resort to courts of arbitration and of justice bids fair to become the rule of the future as it has been in a measure the enlightened practice of the immediate past."

THE INTERPARLIAMENTARY UNION held its fifteenth annual conference at Berlin in Sept. 1908, Chancellor Prince Von Bülow welcomed the conference in his official capacity, declaring that "a rather long experience has convinced him that nothing is so well adapted to destroy misunderstanding as to become acquainted with one another through the development of personal relations."

THE INSTITUTE OF INTERNATIONAL LAW is composed of specialists in international law, selected from the nations at large. Its twenty-fourth session was held at Florence in Sept., 1908. The report of the Secretary, Professor Albéric Rolin, called attention to the order of business which dealt, in the domain of international law proper, with treaties of arbitration, defaulting states, occupation of territories, foreigners in belligerent service, and neutrality.

THE INTERNATIONAL LAW ASSOCIATION held its twenty-fifth session at Budapest in Sept. 1907. Among the subjects discussed were the question of blockade, the international prize court, and political offenses in extradition treaties.

THE AMERICAN SOCIETY OF INTERNATIONAL LAW, which was organized at Mohonk Lake, New York, in 1905, will hold its third annual meeting in Washington April 23 and 24, 1909. The tentative programme includes, among others, the following subjects: Arbitration as a judicial remedy; the nature and definition of political offenses in international extradition; the development of international law by judicial decisions in the United States; the constitution and powers which an international court of arbitral justice should possess. This Society publishes the *American Journal of International Law*, a most valuable and carefully edited publication. Its managing editor is Dr. James Brown Scott of the State Department, Washington, D. C.

THE NOBEL PRIZE for 1908 was divided Dec. 10 between K. P. Arnoldson of Sweden and M. F. Bajer of Denmark (q. v.). See NOBEL PRIZES.

THE SECOND NATIONAL PEACE CONGRESS will be held in Chicago May 3 to 5, 1909, the first having been held in New York, April 14 to 17, 1907. The coming Congress, in purpose and plan, will be similar to the New York Congress, its object being to strengthen public sentiment for international arbitration and the consideration of the next steps to be taken toward the realization of universal peace.

There are numerous local and sectional efforts to arouse interest in international arbitration. The Pennsylvania State Conference was held in Philadelphia last spring and was largely attended and very successful. Similar conferences are planned for the coming year.

The American Branch of the Association for International Conciliation has issued a number of valuable pamphlets, which in 1908 numbered among their writers Baron d'Estournelles de Constant, David Jayne Hill, James Brown Scott, George Trumbull Ladd, Elihu Root, Barrett Wendell, and others.

INTERNATIONAL CONGRESS OF AMERICANISTS. See ANTHROPOLOGY.

INTERNATIONAL FISHERIES CONGRESS. See FISHERIES.

INTERNATIONAL HIGHWAY CONGRESS. The First International Highway Congress, a very important event in the interests of good roads, was held in Paris during the summer of 1908. The congress devoted its time principally to the questions of the construction and maintenance of roads, the comparative study of different paving materials, the cost of laying and maintenance, and the resistance of pavements and roads to the modern methods of locomotion. An international exhibit of machinery used for the construction, maintenance, and cleaning of streets was displayed. See PAVEMENTS AND ROADS.

INTERNATIONAL INSTITUTE OF AGRICULTURE. See AGRICULTURE.

INTERNATIONAL LANGUAGE. At the end of 1907 the representatives of the DALI (Delegation for Adoption of an International Language), elected by ballot, met in Paris—Colonel Harvey, of the *North American Review*, being the representative of the United States—to decide as to the claims of the different international languages proposed. The year 1908 was filled with violent discussions regarding the report.

The principal languages examined were *Volapük*, *Idiom Neutral*, *Bolak*, *Esperanto*. The outcome was: "to adopt *en principe* Esperanto * * * on condition that certain modifications should be made to it by the 'permanent commission' of the DALI according to the indications given in the report of the Secretaries, and in following the recommendations of a project of reform by *Ido* (a pseudonym)."

The project, *Ido* claims, is not to propose a new language, but to render Esperanto, as now in use, both simpler and more consistent. The principal reforms are: to replace the accented letters like *ŝ ĝ ĉ* by more familiar signs, like *sh, gh, ch*;—special form for accusative dropped;—plural in *i* instead of *oj*;—conjugation of verbs considerably simplified;—the puzzling tables of correlatives, *tia, tio, tiu*, * * * *kia, kio, kiu*, * * * *kiam, kiom, kium*, dropped altogether;—vocabulary made more international (e. g., instead of 91 per cent. French stems and 19 per cent. German, have 83 per cent. French and 61 per cent. German). Dr. Zamenhof, the inventor of Esperanto, probably under strong pressure of his Lingus Komitato, refused to consider the changes.

The result is that war is on, in spite of the intervention of a Geneva committee which endeavored to bring about a reconciliation. (Esperantists resented especially the fact that

Ido is no one else but the greatest propagandist of Esperanto, Marquis de Beaufort.)

Esperantists have the advantage of the *situation acquise*; but the *Idists* seem to have good reasons on their side—at least Esperantists, having decided to study reforms for themselves, implicitly grant what is the contention of the *Idists*, that there is room for improvement.

Among the adherents of *Idism* are groups in Berlin, New York, London, Birmingham, Graz, Chartres, Verdun, Reims, Copenhagen, Stockholm, Zurich, etc. The organizers of the first and second congresses of Esperanto, in Boulogne and in Geneva, have joined the reformists. Many who fought bitterly *Idism* without knowing it have now adopted it. After the 4th congress of Esperantists in Dresden, 1908, fifteen groups of *Idists* were founded there. The most important adhesion, however, remains that of the famous linguist Espersen (who received in 1906 from the French Academy the 6,000 francs Prix Volney). For details on the discussion, see articles pro and con in *La Revue* (anc. *Revue des Revues*), Paris, Oct. 15, Nov. 15, and Jan. 1, 1908.

INTERNATIONAL LIVE STOCK EXHIBITION. See AGRICULTURE.

INTERNATIONAL ROAD CONFERENCE. See INTERNATIONAL HIGHWAY CONFERENCE, PAVEMENTS AND ROADS.

INTERNATIONAL SEISMOLOGICAL ASSOCIATION. See EARTHQUAKES.

INTERPARLIAMENTARY UNION. See INTERNATIONAL ARBITRATION.

INTERSTATE COMMERCE COMMISSION. See RAILWAYS.

IOWA. One of the North Central Division of the United States. Its total area is 56,147 square miles. The population, according to Federal estimate made in 1908, was 2,196,970.

MINERAL PRODUCTION. The coal production of Iowa showed a steady increase in 1907 over the figures of the two years previous. In 1907 it was 7,574,332 short tons as against 7,266,224 short tons in 1906 and 6,798,609 short tons in 1905. The value of the output in 1907 was \$12,258,012 as compared with \$11,619,455 for the output in 1906 and \$10,586,381 for the output of 1905. The United States Geological Survey estimates the original coal supply of Iowa at 29,160,000,000 tons. Of this there had been mined from 1840 to the close of 1907 141,608,792 short tons. The coal fields of the State include an area of approximately 20,000 square miles, and are in the south-central and southwestern portion of the State. The coal-mining industry was affected but little in 1907 by the monetary disturbances which affected the production in other States. There were no labor troubles in the State during the year, and other conditions were satisfactory to the successful operation of the mines. The number of men employed in the coal mines of the State in 1907 was 15,585, as against 15,260 in 1906. There were in 1907 33 machines used for mining, as against 34 in 1906. There were 41 men killed in the mines of Iowa during the year. Clay products took an important part in the mineral production of the State. They were produced in 1907 to the value of \$3,728,785, as against \$3,469,027 in 1906. The products of stone were valued at \$499,416, of

which the limestone produced aggregated a value of \$493,815. Other mineral productions of the State are coal products, including coal tar, illuminating gas, and gas coke, zinc, lead, and mineral water. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$17,623,094, as compared with a value in 1906 of \$17,347,800. The production of coal in the State in 1908 is estimated to have been at least equal to if not in excess of that of the preceding year. Operations were suspended on April 1, pending the settlement of the wage scale; but this produced no great inconvenience.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 287,456,000 bushels, valued at \$149,477,000 from 9,068,000 acres; winter wheat, 3,108,000 bushels, valued at \$2,735,000 from 148,000 acres; spring wheat, 4,960,000 bushels, valued at \$4,365,000 from 320,000 acres; oats, 110,444,000 bushels, valued at \$46,386,000 from 4,545,000 acres; barley, 13,500,000 bushels, valued at \$6,885,000 from 500,000 acres; rye, 1,060,000 bushels, valued at \$678,000 from 53,000 acres; buckwheat, 140,000 bushels, valued at \$109,000 from 9,000 acres; flaxseed, 360,000 bushels, valued at \$396,000 from 33,000 acres; potatoes, 11,280,000 bushels, valued at \$6,758,000 from 141,000 acres; hay, 6,460,000 tons, valued at \$36,822,000 from 3,800,000 acres. The State ranks first in the production of oats. It also ranks first in the production of hay, surpassing New York, which up to 1908 occupied first place. In the production of corn Iowa is surpassed only by Illinois. The wheat crop has steadily decreased since 1900, being in 1908 but one-third that of 1900. The acreage planted in flax decreased from 126,453 in 1900 to 20,000 in 1907. The figures for 1908 show quite an increase. The acreage of hay from 1900 has decreased about one-fourth. The numbers of farm animals by thousands on Jan. 1, 1909, were as follows: Horses, 1,419,000; mules, 46,000; dairy cows, 1,586,000; other cattle, 3,842,000; sheep, 747,000; swine 7,908,000. The State ranks first in the number of swine and is surpassed only by Texas in the number of neat cattle, by New York in the number of dairy cows, and by Illinois in the number of horses. The wool clip for 1908 was valued at \$1,444,440. Poultry products form an important item in the yearly income.

MANUFACTURES. Industries carried on in factories showed an increase of 30.1 per cent. in capital, of 11.4 per cent. in the number of wage-earners, and of 20.8 per cent. in the value of products, from 1900 to 1905. The figures for 1905 were \$111,427,000, \$49,481, and \$160,572 respectively. The value of leading products, and, in parentheses, the per cent. of increase over the value in 1900, were: Slaughtering and meat packing, \$30,074,070 (17); cheese, butter, and condensed milk, \$15,028,326; flour and grist mill products, \$12,099,493 (9.9); printing and publishing, \$8,290,810 (34.9); railroad repair shops, \$7,618,721 (22.5); food preparations, \$6,934,724 (50.8); planing mill products, \$5,700,209 (7.6); lumber and timber products, \$5,610,772 (33.8 per cent. decrease); foundry and machine shop pro-

ducts, \$5,488,086 (23). Canning and preserving fruits and vegetables, and the manufacture of glucose and agricultural implements, are important industries. The cities credited with largest value in 1905 were: Cedar Rapids, \$16,279,700; Des Moines, \$15,084,900; Sioux City, \$14,760,700; Davenport, \$13,695,900; Ottumwa, \$10,374,100; and Dubuque, \$9,279,400.

FINANCE. The balance in the general revenue fund July 1, 1907, was \$872,877. The receipts for the fiscal year ending June 30, 1908, were \$3,663,154. The disbursements for the same period were \$3,891,842, leaving a balance July 1, 1908, of \$644,189. The principal sources of revenue were property, insurance companies, and inheritance tax, and the payments by the counties for the support of the insane. About 50 per cent. of the disbursements were for the State charitable and correctional institutions.

CHARITABLE AND CORRECTIONAL INSTITUTIONS. The average daily population of the State charitable and correctional institutions during the biennial period ending June 30, 1908, was as follows: College for the Blind, Vinton, 151.9; School for the Deaf, Council Bluffs, 244; Soldiers' Orphans' Home, Davenport, 497; Institutions for Feeble-Minded Children, Glenwood, 1039; Industrial School for Boys, Eldora, 440; Industrial School for Girls, Mitchellville, 219; Soldiers' Home, Marshalltown, 838; State hospitals for the insane, at Mount Pleasant, 1,048 insane and 23 female inebriates, at Independence, 1,115, at Clarinda 1,034, and at Cherokee 825; State Hospital for Inebriates at Knoxville, 129; State Penitentiary at Ft. Madison, 443; State Sanatorium for the treatment of tuberculosis at Oakdale, 27; the Reformatory at Anamosa, 354. The annual expenditure for all charitable and correctional institutions during the year 1907-8 was \$1,982,547.88.

POLITICS AND GOVERNMENT. A special session of the Legislature was called on Aug. 25th for the purpose of electing a Senator to succeed William B. Allison, whose death is noted below. On Feb. 18, the State Supreme Court handed down an important decision which upheld the constitutionality of the Des Moines Commission plan of municipal government. Under this plan the ward system is done away with, and in lieu of the Board of Aldermen all departments under the city administration are placed in the hands of a board of five councilmen, to be elected by the city at large. The plan was adopted at a special election held in 1907. Opponents of this plan took the matter to the Supreme Court on the ground that the denial of the right of the people to select their own aldermen by wards vitiated the principle of representative government. They held also that it placed the city in a class by itself rather than under the laws which the constitution declared should be uniform in their operations, and they contended further that it tended to merge legislative and judicial functions into a single body. Each one of these contentions was set aside by the court, and the city proceeded to elect councilmen to assume control of public offices under the new plan. On April 27, Attorney-General Byers ruled that a permit to issue stock could not be granted by the State Executive Council because the corporation purposed retailing intoxicating liquors. He declared that under the law there must be individual and not corporate responsi-

bility. In a previous opinion, rendered on Feb. 17th, Mr. Byers held that saloons could not lawfully be owned or controlled by corporations.

On Aug. 4, Senator William B. Allison (q. v.) died. For the account of his nomination at the State primaries and the election of his successor, see *Conventions and Elections* below.

CONVENTIONS AND ELECTIONS. Primary elections for the nomination of a United States Senator and for State officers were held on June 2. Senator Allison was a candidate for reelection and his strongest opponent was Gov. Albert B. Cummins. Senator Allison received a majority of about 10,000. B. F. Carroll was nominated for governor by the Republicans over Warren Garst by a majority of about 20,000. Fred E. White was the successful Democratic nominee for governor and Claude R. Porter for (U. S.) Senator. Senator Allison died, as noted above, on Aug. 4, and a special session of the Legislature was called to amend the primary law so that the people might again nominate a United States Senator at a primary election to be held on the day of the general election. It also, under the Constitution had to elect a Senator to fill the Allison vacancy. Gov. Cummins received 65 out of 83 votes necessary to elect, and the Legislature adjourned without electing a Senator. The Republican State Convention met at Des Moines on Mar. 18. A resolution was adopted by a vote of 672 to 510 urging the reelection of William B. Allison to the United States Senate. The adoption of this resolution developed the only contest of the convention. The platform adopted approved the readjustment of the rates of the tariff when conditions so changed that public interest demands their alteration. The delegates elected were instructed to vote for William H. Taft for President. The Democratic State Convention met on Mar. 26 at Des Moines. Resolutions favorable to William J. Bryan were adopted and the delegates were instructed to vote for him for President. It was said that Mr. Bryan prepared the platform, which was adopted. In the election on Nov. 3, the vote for national tickets was as follows: Taft, 275,210; Bryan, 200,771; Chafin, 9,837; Debs, 8,287. For governor, Carroll (Rep.) received 256,980 votes and White (Dem.) 194,129. The plurality of Gov. Cummins over John F. Lacey in the Senatorial primary was about 40,000 votes. Shortly after the election the Legislature convened in special session and elected Mr. Cummins United States Senator.

STATE OFFICERS: Governor, B. F. Carroll; Lieutenant-Governor, George W. Clarke; Secretary of State, W. C. Hayward; Treasurer, W. W. Morrow; Auditor, T. L. Bleakly; Attorney-General, H. W. Byers; Superintendent of Education, J. F. Riggs; Adjutant-General, Guy E. Logan—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Wm. D. Evans, Rep.; Judges, Scott M. Ladd, Emlen McClain, Rep.; John C. Sherwin, Rep.; Horace E. Deemer, Rep.; S. M. Weaver, Clerk, H. L. Bousquet, Rep.

The State Legislature of 1909 was composed of 34 Republicans and 16 Democrats in the Senate and 80 Republicans and 28 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

IOWA, STATE UNIVERSITY OF. An institution of higher learning at Iowa City, Ia., founded in 1847. In 1908 the attendance was 2,360, distributed as follows: Literature and arts, 1,180; medicine, 354; applied science, 223; graduate college, 195; dentistry, 163; music, 67; pharmacy, 66; summer school for library training, 40. During 1907-8 the extension of the Hall of Engineering was erected at a cost of \$75,000, completing the first wing of the engineering quadrangle. A steam engineering laboratory has also been built at a cost of \$10,000. At the end of the year work was in progress on the new law building, to cost \$15,000. This will be completed in 1909. The faculty numbered 160, and the library contained 65,000 volumes.

IRON AND STEEL. The dependence of the commercial interests of the United States upon the iron and steel industry, and conversely the relation of this particular industry to general business conditions, is so direct and important that it is not difficult to realize that the financial panic of 1907 and the consequent depression should have called a halt in the march of prosperity and activity that in the previous five years had characterized all stages of this industry from mining to finished product. In 1908 there was curtailment of production and general depression all along the line, and this condition was also prevalent in Europe, where, for example, in Great Britain the output of pig iron suffered a decline of about 12 1-2 per cent., or from about 10,400,000 tons in 1907 to about 9,100,000 tons in 1908—yet it must be said that the latter figure was only exceeded in 1907. With the great depression in the United States must be considered a number of artificial influences which interfered with the natural course of the industry under such conditions, due largely to the position taken by the United States Steel Corporation, which has supreme power by virtue of its control of the major part of the American production from mine to finished article. The Steel Corporation decided that notwithstanding the falling off in demand, due to the general business depression, that there should be no reduction of prices or attempt to cut under the independent producers. Accordingly, as will be discussed later in this article it determined to maintain its prices resolutely.

But with this immense corporation were to be found a number of the largest independent producers working in harmony, so that in such times of depression, as 1908, as well as in the prosperity of the previous years, the market was steadied and prices maintained and controlled. The harmony thus manifested was complete and prices were maintained without break both by the United States Steel Corporation and the independents.

With the reestablishing of better business conditions toward the latter part of the year 1908, there came, following the presidential election (See *TARIFF*) the hearings on the proposed revision of the tariff, at which much contradictory and confused testimony was presented to the Ways and Means Committee. This investigation and the consideration of the iron and steel schedules of a bill to be introduced into Congress aroused a feeling of uncertainty not only in the industry, but among the business public at large, for while it was evident that reductions in rates could

be made without any serious damage to manufacturing interests, yet there was produced a feeling of doubt and hesitation that hindered the tendency toward healthy development for iron and steel products manifested at the end of the year. Summarizing conditions briefly before a more detailed consideration of the industry, it may be said that the iron ore production was the smallest since 1904, while the amount of pig iron produced was the smallest in eight years. But at the end of the year stocks of ore were believed to be smaller than in 1907, and with the expectation of increased business the various ore producing properties in the Lake Superior region, in the Southern States, and even in the less important fields, were being put in shape for increased demands for ore, while the plants themselves were being overhauled for future business.

The production of pig iron in the United States during 1908 amounted to 15,936,018 long tons, as compared with 25,781,361 long tons valued at \$529,958,000 in 1907, and 25,307,191 long tons valued at \$486,151,139 in 1906. The world's production of pig iron in 1907 amounted to 60,680,014 metric tons as indicated in the accompanying table, while in 1908 the total output was estimated at considerably less than 50,000,000 tons, due in large part to the decline in American production, and to a period of depression in Europe similar to that prevalent in the United States. Consequently, it is to be observed that the American output which in 1907 practically equaled that of the three next countries, Germany, Great Britain, and France, combined was only 4,000,000 tons in excess of that of Germany alone.

WORLD'S PRODUCTION OF PIG IRON.

Country	Pig Iron, Metric Tons	
	1907 (a)	1908 (b)
United States	26,193,863	15,800,000
Germany	13,045,766	11,800,000
Great Britain	10,082,638	9,000,000
France	3,588,949	3,450,000
Russia	2,768,220	2,850,000
Belgium	1,427,940	1,350,000
Austria-Hungary	1,405,000	1,500,000
Sweden	535,000	500,000
Canada	590,444	600,000
Spain	385,000	400,000
Italy	32,000	135,000
Japan .....	.....	38,000
Other countries	625,000	100,000
Total	60,680,014	47,523,000

(a) *Mineral Industry*, Vo. XVI.

(b) Estimates of *Journal of Commerce and Commercial Bulletin*, Jan. 4, 1909.

PRODUCTION OF IRON ORE IN THE UNITED STATES. The decrease in the production of pig iron, as might be expected, has been accompanied by a proportionate falling off in the amount of ore mined, which has been general and confined to no particular region. The Lake Superior mines on the Marquette, Mich., Menominee and Gogebia in Michigan and Wisconsin, and the Vermillion and Mesabi in Minnesota ranges continue to be the chief sources of iron ore for American furnaces, as conditions of mining and lake transportation either with no rail haul in the case of the works on the lakes, or one of no great length in the case of the western Pennsylvania mills, together with the quality of the ore itself, make its use eminently desirable by the United States Steel Corporation, which has the largest interest in these mines. During

1908 the production from the Lake Superior mines was estimated at 25,927,000 long tons, as compared with the record output of 1907, 42,245,070 tons, and 38,522,239 tons in 1906. In spite of business conditions active preparations were being made for the future, especially in stripping and preparing for mining the ore-bearing lands of the United States Steel Corporation on the Mesabi Range in Minnesota, while in the Southern iron districts of Alabama, Tennessee, and Georgia the large companies were preparing to extend their operations, and in general to install improved methods and machinery. In such Eastern States as New York, old mines were reopened or put in readiness for operation, while some new mines were started. Almost everywhere it was recognized that a lower grade of ore could be used with profit.

According to the statistics of the United States Geological Survey the iron ore produced in the United States during 1907 amounted to 51,720,619 long tons, valued at \$131,996,147 at the mines. As compared with the production of 1906, the most productive previous year, this was an increase of 8.32 per cent. in tonnage and of 31.21 per cent. in value. The production of iron ore in the United States in 1906 and 1907, classified by States, was reported as follows:

PRODUCTION IRON ORE IN UNITED STATES.

State	1906		1907	
	Quantity long tons	Value	Quantity long tons	Value
Alabama	3,996,098	\$5,123,539	4,039,453	\$4,963,129
Arkansas and Texas	(a) 36,660	36,660	118,667	120,060
Colorado	14,078	22,525	11,714	21,085
Connecticut and Massachusetts	31,343	94,129	37,166	136,440
Georgia	411,230	734,780	444,114	837,102
Kent'ky, Maryland & West Virginia	46,940	58,175	62,808	95,891
Michigan	11,822,874	31,145,087	11,830,342	36,441,330
Minnesota	25,364,077	51,799,256	28,969,658	76,668,836
Missouri	80,910	158,109	(b) 111,768	(b) 226,286
Mont., Nevada, New Mex., Utah, Wyoming	792,190	946,551	(c) 819,544	(c) 967,190
New Jersey	542,518	1,570,578	549,760	1,815,596
New York	1,041,992	2,635,639	1,375,020	2,820,135
North Carolina	56,057	75,638	50,439	113,488
Ohio	17,384	29,706	23,589	41,061
Pennsylvania	949,429	1,246,267	837,287	1,298,717
Tennessee	870,734	1,307,433	813,690	1,325,134
Virginia	828,081	1,579,817	786,856	1,538,920
Wisconsin	848,133	2,033,217	838,744	2,965,737
Total	47,749,728	\$100,597,106	51,720,619	\$131,996,147

(a) Production of Texas alone.
 b. Includes Iowa
 c. Includes California and Washington.

Of the iron ore production in 1907, 46,060,486 tons, or 89.1 per cent. of the total was red hematite. Brown ore amounted to 2,957,477 long tons or 5.7 per cent. magnetite made up 2,679,067 tons, or 5.2 per cent., while the quantity of carbonate used was but 23,589 tons. The average price per ton of brown ore in 1907 was \$1.81, ranging from \$3.67 in Connecticut and Massachusetts to \$1.01 in Arkansas and Texas. The average price for red hematite was \$2.63 with a maximum of \$3.24 in Wisconsin and a minimum \$1.06 in Kentucky, Maryland, and West Virginia. The average price for magnetite was \$2.03 and the average price of carbonate was \$1.74.

The decline in the industry, due to financial and business conditions during 1908, is reflected by the following table:

IRON ORE PRODUCTION OF THE UNITED STATES.			
	1907	1908	Changes.
	<i>Long tons</i>	<i>Long tons</i>	
Lake Superior.....	42,245,070	25,927,000	D. 16,318,070
Southern States.....	7,585,000	6,400,000	D. 1,185,000
Other States.....	3,125,000	1,875,000	D. 1,250,000
Total production.....	52,955,070	34,202,000	D. 18,753,070
Add imports.....	1,229,168	776,898	D. 452,270
Total supply.....	54,184,238	34,978,898	D. 19,205,340
Deduct exports.....	278,208	309,099	I. 30,891
Apparent consumption	53,906,030	34,669,799	D. 19,236,231

The chief imports of iron ore received into the United States came from Cuba and were sent to the furnaces of the Maryland Steel Company, near Baltimore, and other works on or near the coast. The exports of iron ore were mainly to Canada. The exports and imports of iron ore for the year ended December 31st were reported as follows, in long tons:

TOTAL PRODUCTION OF PIG IRON IN THE UNITED STATES IN 1907 AND 1908.

Statistics collected from the Manufacturers by the Iron and Steel Association (all in gross tons of 2,240 pounds).

States	Blast Furnaces Dec. 31, 1908			Production—Gross tons (Includes spiegeleisen, ferro-manganese, ferro-silicon, etc.)	
	In.	Out.	Total	Total for 1908	Total for 1907
Massachusetts.....	1	1	2	13,794	19,119
Connecticut.....	2	1	3		
New York.....	15	12	27	1,019,495	1,659,752
New Jersey.....	3	3	6	225,372	373,189
Pennsylvania.....	87	73	160	6,987,191	11,348,549
Maryland.....	2	3	5	183,502	411,833
Virginia.....	10	16	26	320,458	478,771
Georgia.....	0	2	2	24,345	55,825
Texas.....	0	4	4		
Alabama.....	25	26	51	1,397,014	1,686,674
West Virginia.....	1	3	4	65,551	281,066
Kentucky.....	2	6	8	45,096	127,496
Tennessee.....	12	9	21	290,826	393,106
Ohio.....	39	34	73	2,861,325	5,250,637
Illinois.....	14	11	25	1,691,944	2,457,768
Indiana.....	3	0	3	348,096	436,507
Michigan.....	8	6	14		
Wisconsin.....	4	3	7	148,938	322,083
Minnesota.....	1	0	1		
Missouri.....	2	0	2	313,071	468,486
Colorado.....	3	3	6		
Oregon.....	0	1	1	313,071	468,486
Washington.....	0	1	1		
California.....	0	0	0	313,071	468,486
Total.....	236	223	459	15,936,018	25,781,361

Kind	1906.(a)	1907.(a)	1908.(b)
Foundry and forge..	5,709,350	6,397,777	4,307,734
Bessemer pig	13,840,518	13,231,620	7,216,976
Basic pig	5,018,674	5,375,219	4,010,144
Charcoal iron	433,007	437,397	249,146
Spiegel and ferro-manganese	300,500	339,348	152,018
Total	25,302,049	25,781,361	15,936,018

(a) *Mineral Industry*. Vol. XVI.

(b) American Iron-Steel Association, Feb. 1, 1909.

	1907.	1908.	Changes.
Exports	278,608	309,099	I. 30,491
Imports	1,229,168	776,898	D. 452,270

Of the imports in 1908 Cuba furnished 579,608 tons. British North America 53,298 tons, and Europe 143,922 tons.

Imports of manganese ore were 209,021 tons in 1907, and 178,203 in 1908; a decrease of 30,818 tons.

PIG IRON. No two years could be selected to show greater changes or contrasts in the whole history of pig iron production than 1907 and 1908. From a high water mark in October, 1907, of a monthly output of 2,336,972 long tons of coke and anthracite pig iron it fell to 1,077,740 tons in February, 1908, and in round numbers the output for 1908 was but 62 per cent. of that of the previous year. This falling off of 38 per cent. in two consecutive years was the greatest ever known in the history of the industry and naturally was compared to that of 22 per cent. which took place in 1893 when there was a shrinkage from 9,157,000 tons in 1892 to 7,124,502 tons.

The total pig iron production for the United States in 1908 amounted to 15,936,018 long tons as compared with 25,781,361 tons in 1907, and 25,307,191 tons in 1906. This is shown in more detail by the accompanying tables which give the production by States and by kinds. The imports for 1908 were 92,202 tons, and the exports 46,696 tons, so that the apparent consumption was about 15,981,524 tons.

In the operation of blast furnaces there was a striking contrast between 1907 and 1908. On January 1st of the former year there were 340 furnaces in blast and 98 idle, and on June 30th

of that year, these figures became 360 and 82, respectively. With the change in business conditions many of the active furnaces were shut down, and on December 31st there were but 167 in blast out of a total of 443. This proportion was maintained during the first half of 1908, there being 168 furnaces in blast on June 30th, at which time, however, there were 24 new furnaces under construction and 17 being rebuilt. But conditions improved, and by the end of the year there were reported 236 furnaces out of 459 with a weekly capacity of about 400,000 tons in blast. This can be compared with the weekly capacity January 1, 1908, 235,152, and the high record weekly production of 528,170 tons, July 1, 1908.

STEEL. The total production of Bessemer-steel ingots and castings in the United States in 1908 was 6,116,755 long tons, as compared in 1907 with 11,667,549 tons, and 12,275,830 tons in 1906, which was the maximum ever recorded. The production of open-hearth steel ingots and direct castings was 7,780,872, 11,594,736 long tons in 1908, as compared with 13,897,627 tons in 1907, or a decrease of 32.6 per cent. In 1908 the proportion of basic open-hearth steel was 7,084,568 long tons, and of acid open-hearth steel 696,304 tons. In 1908 the total production of steel was 7,084,568 tons, or a reduction from 1907 of about nine million tons. The output

was divided into 6,116,755 tons of Bessemer steel, 7,780,872 tons of open-hearth steel, and 50,000 tons of other steels. The returns for finished products indicated the same falling off as in other branches of the industry on account of the industrial depression. This was especially marked in rails and track materials, as few railways were in the market for any but the most necessary materials for improvement or equipment, while on the other hand the demand for structural materials showed the least falling off, as during the times of prosperity necessary building had been retarded by high prices and labor troubles. The rail production in 1908 was 1,921,611 tons, against 3,633,654 tons in 1907, a decrease of over 47.1 per cent. The output was divided as follows:

State—Gross tons	Bessemer	Open-hearth	Iron	Total
Pennsylvania	315,563	177,461	..	493,024
Other States.....	1,038,673	389,843	71	1,428,587
Total for 1908...	1,354,236	567,304	71	1,921,611
Total for 1907...	3,380,025	252,704	925	3,633,654

The United States Steel Corporation, which is responsible for more than one-half of the output of finished products of iron and steel in the United States, published its report for the twelve months ending December 31st, which showed the following earnings:

UNITED STATES STEEL CORPORATION INCOME ACCOUNT FOR CALENDAR YEARS.

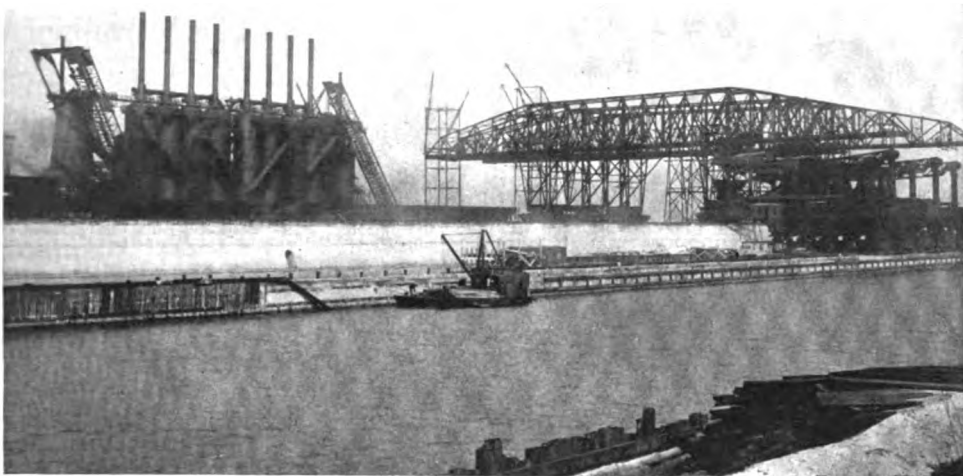
	1908	1907	1906
Total net earnings for year *.....	\$91,826,520	\$160,984,477	\$156,624,273
Deduct:			
For sinking funds	6,361,668	7,105,655	6,812,063
Depreciation and reserve funds	15,396,120	22,196,571	21,253,272
Interest	23,862,648	22,860,353	22,839,851
Additional property, construction, etc. ....	.....	54,000,000	50,000,000
Special improvements and replace fund .....	.....	3,500,000	7,500,000
Charged off for adjustments	*289,182	483,529	90,502
Total deductions	\$45,331,255	\$110,146,108	\$108,495,688
Balance	\$46,495,265	\$ 50,838,369	\$ 48,128,585
Dividends on stock:			
Preferred, 7%	25,219,676	25,219,676	25,219,676
Common, 2%.....	10,166,050	10,166,050	10,166,050
Total dividends	\$35,385,726	\$35,385,726	\$35,385,726
Undivided earnings for the year	11,109,539	15,452,643	12,742,859

* Arrived at after deducting each month the cost of ordinary repairs, and maintenance of plants, employees' bonus funds, and interest on bonds and fixed charges of subsidiary companies.

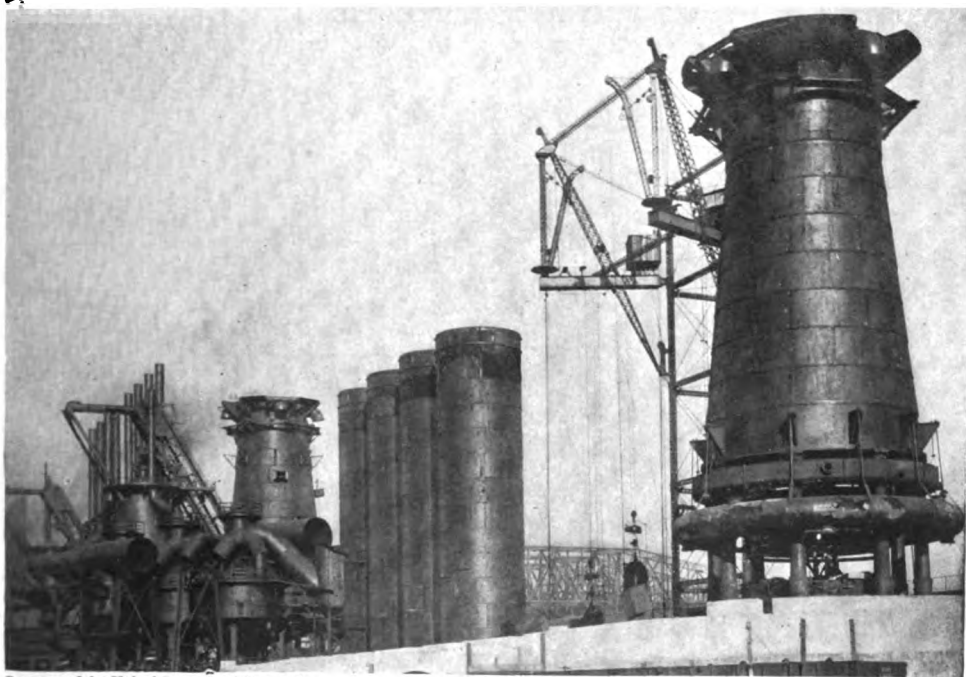
The unfilled orders on hand December 31st, 1908, amounted to 3,603,527 tons, as compared with 3,421,977 tons on September 30th, and 4,624,563 tons on December 31st, 1907.

THE NEW GARY STEEL WORKS. The most important single event in the iron and steel industry was the approaching completion of the Gary Works of the Indiana Steel Company at Gary, Indiana, by far the greatest and best equipped steel plant in the world. The Indiana Steel Company was organized in January, 1906, as a constituent interest of The United States Steel Corporation, and practically unlimited capital was available for the construction of the new works, \$50,000,000 having been appropriated for its construction from 1905 to 1907. The total outlay for the new plant at the end of 1908 amounted to more than \$40,000,000, which was expended for ground, dredging harbor and water front, change of railroad right of way, and a number of other expenses made necessary by the immense character of the work, as well as for the plant itself with its machinery. Although the Indiana Steel Company nominally is a separate corporation, yet it is organized as a subsidiary of the Federal Steel

Company. Just as the Union Steel Company and Clairton Steel Company plants have been operated by the Carnegie Steel Company, so the operation of the Gary Plant was to be carried on under lease to the Illinois Steel Company. Now, in all previous steel works both in America and Europe, the design and construction of the plant represented an evolution and development, but here it was possible to locate and design at once a large plant without considering other elements than its profitable and economical operation. Consequently a site was selected in the Middle West 23 miles from Chicago as a suitable distributing centre to supply the great and growing trade of the Central West and Northwest, and on the shore of Lake Michigan where, along a water front of 1½ miles, ore could be landed direct from the largest vessels loaded at the mine ports in the North. Sufficient land (9,000 acres) was acquired not only for the plant itself, but for a future city to house the army of employees. Here the new plant was being erected and the various units have been united in a comprehensive scheme so that at every stage from beginning to end the production of steel will be facilitated and the



Stoves, Furnaces, Ore Bridge, and Unloaders from the East, viewed across the Harbor for Ore Vessels



Courtesy of the United States Steel Corporation

A group of Furnaces, Stoves, and Gas Washer

**THE WORLD'S GREATEST STEEL PLANT
THE NEW WORKS OF THE INDIANA STEEL COMPANY AT GARY, INDIANA**

maximum economy of production secured. This is largely secured by utilizing the gases from the blast furnace, especially in gas engines driving the blowers and connected with electric generators for the generation of electric power. (See GAS ENGINES.) Various mechanical and metallurgical processes have been developed with great advantage in American steel works, but for the first time all the best practice was collected in a single plant with due regard for economy of working. Thus there is provision for stocking 2,500,000 tons of iron ore, which would furnish a full supply not only for the winter months when lake navigation is impossible but would keep the entire plant in operation for six months. At the end of the year four of the 16 blast furnaces provided for in the plans had been completed, and two were put in blast in December.

Each blast furnace has a capacity of 500 tons of ore a day and the ore is unloaded mechanically and carried to storage bins from which it can be charged to the blast furnaces. Likewise extensive storage facilities are provided for coke, coal, and limestone, while a complete transportation system, amounting with the tracks of the classification freight yards to some 225 miles of track, completely connects every portion of the works, which are so arranged that there is no unnecessary handling of material. In addition to blast furnaces the works include open-hearth steel furnaces, rolling mills, and all necessary subsidiary machinery for the generation of power, repairs, and maintenance. The works are designed on what is known as the "unit" plan, so that future extensions can be made readily without interference with the construction already in use, while the arrangement is such that the material from one unit can be passed directly to the next department entirely by machinery, so that in the entire plant labor is reduced to a minimum. The main work of the blast furnaces will be to supply material for the open-hearth steel furnaces, and it is noteworthy that this type rather than the Bessemer furnace was adopted, as the product, especially in railway rails, seems to be more reliable, while the trend of structural steel material also seems to be from Bessemer to open-hearth. With the four open-hearth buildings completed at the end of the year the Gary plant will have a capacity of over 12,000 tons of steel a day, or 2,500,000 tons a year, which amount will be increased to 4,000,000 tons when all six furnaces projected are in operation. Each furnace is 40 feet long by 16 feet wide, and required 800,000 bricks for its construction. The furnaces, 84 in number, are to be supplied with gas from a producer, and are arranged in similar groups of 14, each group in a separate building, and having a daily capacity of 3,360 tons. The material next passes to the rail mill, where 4,000 tons of steel rails can be produced daily, or in normal operation 100,000 tons per month. The various rolls, shears, and presses are all driven by powerful electric motors, as is also the case in the billet mill, where the blooms are reduced to billets, and these in turn to small sections. Additional mills contemplated were a 60-inch universal plate mill, which would be the largest of its size in the world, and a 44x160-inch sheared plate mill, and later, among other additions, an axle mill, a structural mill, and vari-

ous sizes of merchant mills. The slag will be granulated and shipped to Buffington, a few miles distant, where it will be made into Portland cement by the Universal Portland Cement Company. Every facility is provided for loading the finished product for market directly on freight cars, or in case it is desired to ship, let us say, pig iron to other works of the Steel Corporation. Both in its design and size the Gary plant stands unique, and its operation will be watched with the greatest interest by the entire iron and steel industry of the world.

The year 1908 was not marked in the industry at large by any striking changes in metallurgy, though there was constant progress in the use of the Gayley dry air blast, which was found quite as advantageous when used with the Bessemer converter as in the blast furnace, where it was first applied with such success.

MARKETS. Such abnormal conditions due to the financial panic of October, 1907, and the consequent intense business depression resulted in 1908, that any consideration of the iron and steel markets for the year must reflect in large measure the general business situation with special features unique and solely appropriate to the iron industry. Thus, soon after the panic, in December, 1907, supervising committees were instituted by the large producers to regulate prices and to discuss the curtailment of production. While independent producers were represented in such a movement and were duly benefited, yet, as might have been expected, the influence of the United States Steel Corporation was paramount, and its Chairman, E. H. Gary, was largely responsible for a general policy whereby the producers stood together during what was unquestionably the greatest crisis through which the iron and steel industry had ever passed. The plan adopted was to maintain prices in spite of a lessened demand, and not to attempt any wholesale cutting or using the time to force out of business the weaker producers. At any event the understanding was maintained, and was loyally observed by all, so that from many the U. S. Steel Corporation received unstinted praise for conserving the best interests of the industry at large during troublesome times, just as it had done when the industry was at the height of its prosperity by the observance of due conservatism. On the other hand there were those who argued that a policy of freer concessions would have aided in the restoration of normal business conditions, as capital would have been encouraged in investing in various construction enterprises if cheap materials could have been secured on favorable terms.

As a contrast from steel and steel products, the market for pig iron ran a course more in harmony with the laws of supply and demand, and while it was demoralized and low prices prevailed for a large part of the year, the business done was limited. In June a readjustment of steel prices occurred and a reduction of from 10 to 15 per cent., or \$2 to \$4 a ton, in finished steel products was made, and while it improved business in certain lines to a small extent it was not sufficient to attract buyers in any large numbers. Possibly the worst showing of the year was made in steel rails, as the railway companies least of all were in a financial condition to make extensive contracts or purchases. In 1907 the output of rails of all kinds was

estimated at 3,633,654 gross tons, whereas in 1908 the total shipments against orders were unofficially estimated at about 1,600,000 tons. The price for standard sections remained during the year at \$28, and also was announced for the ensuing year, yet on light and rerolled rails there was considerable cutting of prices during the year.

EXPORTS AND IMPORTS. Exports of iron and steel, including machinery, from the United States for the year ending December 31st, amounted to \$151,113,114 in 1908, as against \$197,066,781 in 1907, a decrease of \$45,953,667, or 23.3 per cent.

The total quantities of iron and steel so far as reported were 964,266 tons in 1908, and 1,301,979 tons in 1907, a decrease of 377,703 tons. Imports of iron and steel, including machinery, into the United States for the year ending December 31st were valued at \$38,789,857 in 1907 and \$19,957,261 in 1908, a decrease of \$18,832,596, or 48.5 per cent.

The total imports of iron and steel so far as reported were 206,955 long tons in 1908, and 662,470 in 1907, a decrease of 455,575 tons, the greater part of which was in pig iron.

IRRIGATION. The great activity in the construction of irrigation works by both the government and private parties which had been so noticeable for several years continued during 1908.

RECLAMATION ACT. Government construction was done under the Reclamation Act (Act of June 17, 1902), which set aside for this purpose the net receipts from the sale of public lands, and provided for the repayment of the cost of the works built by the users of the water, the whole to constitute a revolving fund for the construction of irrigation works. The following table shows the projects undertaken under this law, the estimated cost, the estimated expenditures to Dec. 31, 1908, and the percentage of completion at that date:

PROGRESS OF PROJECTS under the Reclamation Act of 1902.

Location	Project	Area	Estimated Cost	Estimates December 31, 1908	
				Expenditure	Per cent. of completion
		<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	
Arizona.....	Salt River.....	240,000	7,900,000	850,000	61.6
Arizona-California.....	Yuma.....	92,150	5,630,000	2,875,000	51.0
California.....	Orland.....	30,000	1,500,000	168,000	11.2
California-Oregon.....	Klamath.....	165,000	5,950,000	1,633,000	28.5
Colorado.....	Grand Valley.....	50,000	2,500,000	50,000	2.0
do.....	Uncompahgre.....	146,000	5,500,000	3,515,000	64.0
Idaho.....	Minidoka (Gravity).....	84,200	1,780,800	1,780,800	100.0
do.....	Minidoka (Pumping).....	49,900	600,000	211,000	35.2
do.....	Payette-Boise, So. Side Division.....	132,000	4,765,000	2,250,000	47.2
Kansas.....	Garden City.....	10,656	355,000	355,000	100.0
Montana.....	Lower Milk River*.....	160,000	6,250,000	250,000	4.0
do.....	Huntley.....	33,000	840,000	840,000	100.0
do.....	Sun River, Fort Shaw Unit.....	16,000	480,000	480,000	100.0
Nebraska-Wyoming.....	North Platte.....	96,000	4,200,000	3,940,000	93.3
Nevada.....	Truckee-Carson.....	100,000	4,390,000	3,951,000	90.0
New Mexico.....	Carlsbad.....	20,000	640,000	640,000	100.0
do.....	Hondo.....	10,000	370,000	370,000	100.0
do.....	Rio Grande.....	160,000	8,000,000	65,000	.8
do.....	Leasburg Unit**.....	.....	210,000	210,000	100.0
North Dakota.....	Buford-Trenton.....	12,500	316,000	316,000	100.0
do.....	Nesson.....	18,500	740,000	18,000	4.5
do.....	Williston.....	12,000	474,000	474,000	100.0
North Dakota-Montana.....	Lower Yellowstone.....	66,000	2,754,300	2,570,000	82.5
Oregon.....	Umatilla.....	20,440	1,208,400	1,065,000	82.0
South Dakota.....	Belle Fourche.....	100,000	3,400,000	2,000,000	58.8
Utah.....	Strawberry Valley.....	60,000	2,880,000	630,000	21.9
Washington.....	Okanogan.....	9,000	585,000	455,000	77.8
do.....	Sunnyside.....	99,000	2,253,000	881,000	39.1
do.....	Tieton.....	30,000	1,800,000	987,000	54.8
do.....	Wapato.....	120,000	3,600,000	19,000	5.6
Wyoming.....	Shoshone.....	150,000	7,560,000	3,175,000	42.0
		2,292,346	89,431,500	42,083,800	.....

* This does not include the St. Mary Project, on which the estimated expenditure is \$257,000.

** The Leasburg diversion dam will furnish a temporary, intermittent supply to about 20,000 acres, which will be a portion of the Rio Grande Project and share in the benefits of the Eagle Dam.

Water was supplied to lands under some of the projects in 1908, but statements of the areas served are not available. It was estimated that water would be available during that season for about 500,000 acres, but the area actually served was not so great.

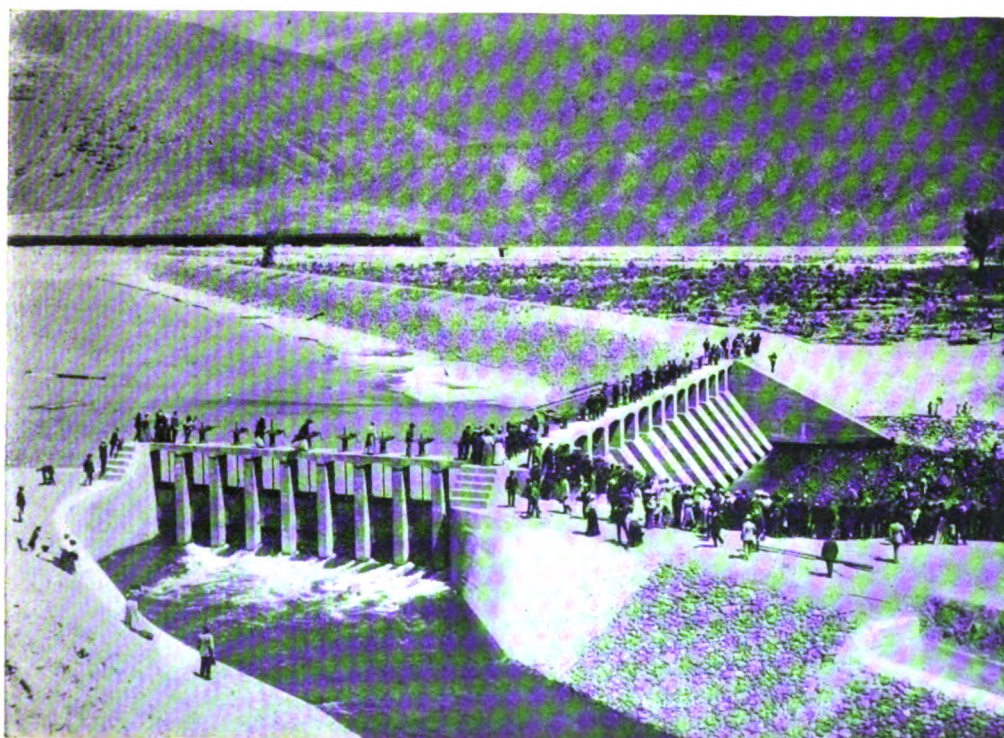
THE CAREY ACT. The greater part of the private construction of irrigation works was done under the Carey Act (Act of Aug. 18, 1894), which granted to each of the arid States 1,000,000 acres of desert land on condition of its reclamation. Congress, in 1908, increased the grants to Wyoming and Idaho, 1,000,000 acres each, these being the only States which had applied for the whole of the original grants. The following table shows the areas selected, approved, and patented under this law up to July 1, 1908:

WORK DONE UNDER CAREY ACT.

State	Selected	Relinquished etc.	Approved not patented	Approved and patented
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
Colorado	50,807.94	5,704.95	54,102.99	.....
Idaho	1,180,566.17	265,828.94	662,254.00	156,964.90
Montana	104,587.98	2,792.53	83,498.54	18,296.91
Nevada	12,644.61	8,000.00	.....	.....
Oregon	432,202.53	78,507.31	245,287.52	50,063.13
Utah	328,327.40	236,980.83	48,226.74	.....
Washington	155,549.39	155,649.39	.....	.....
Wyoming	966,598.64	198,994.18	623,054.44	67,768.72
Total	3,239,284.66	952,458.13	1,716,424.23	293,083.66



WOODBIDGE CANAL, SAN JOAQUIN VALLEY, CALIFORNIA



TRUCKEE-CARSON PROJECT, NEVADA, U. S. RECLAMATION SERVICE

View showing the gates of the New Diversion Dam completely closed and the entire flow of the Truckee River diverted into the main Truckee Canal at the opening of the Truckee-Carson Project

The increases in the items for the fiscal year ending June 30, 1908, were: Selected, 1,471, 774.88; approved, but not patented, 600,249.89; patented, 175,590.83. The area selected during the year was 80 per cent. of the total previously selected; the area approved was more than fifty per cent. of the area previously approved, and the area patented was 1.5 times as great as the total previously patented showing that the activity under this law was much greater than ever before. The granting of additional areas to Idaho and Wyoming indicates an inclination on the part of Congress to increase the grants under this law to all the States, as the areas applied for reach the limit of the present grants. The act does not apply to the Territories, but its extension has been recommended by many.

AREAS IRRIGATED IN THE UNITED STATES. The following estimates of the total areas irrigated in the United States in 1908, and the area which can be irrigated, were collected in connection with the work of the Conservation Commission.

AREAS IRRIGATED IN ARID REGION OF THE UNITED STATES IN 1908.

State	Area irrigated	Area irrigable
	<i>Acres</i>	<i>Acres</i>
Arizona	200,000	1,000,000
Arkansas (rice)....	6,000	
California	1,800,000	\$
Colorado	1,852,900	2,893,900
Idaho	2,665,000	5,446,000
Kansas	50,000	\$
Louisiana (rice)....	310,000	
Montana	1,500,000	6,000,000
Nebraska	250,000	\$
Nevada	500,000	1,500,000
New Mexico	400,000	2,000,000
North Dakota	*64,300	1,540,000
Oregon	500,000	3,000,000
South Dakota	42,000	*191,900
Texas { General	500,000	
rice	284,000	
Utah	800,000	2,000,000
Washington	260,000	1,000,000
Wyoming	1,000,000	6,200,000
Total	13,185,700	

*Includes total under Reclamation Service ditches, 44,300 acres, much of which is not yet irrigated.

\$ State only partly arid. Area necessarily indefinite.

This table does not include the areas irrigated in the humid parts of the United States, where the artificial watering of truck and fruit crops is becoming very common. No estimates of the areas watered have been made, but it is considerable, especially in Florida and the other South Atlantic States and Gulf States, where winter crops are grown.

ISTHMIAN CANAL ZONE. See PANAMA CANAL.

ITALIAN EARTHQUAKE. See EARTHQUAKES.

ITALIAN SOMALILAND. A protectorate of Italy, on the eastern coast of Africa, extending from the Gulf of Aden to the equator. The Juba River divides it from British East Africa. Area, about 100,000 square miles; population, about 400,000. On the left bank of the Juba several land concessions of 5,000 hectares each, have been made to Italian capitalists and companies intending to pay special attention to cotton and tobacco culture. Wireless telegraph stations have been established, which are also connected with stations in British territory, in order to retain control of affairs during the monsoon period. The administration is in the hands

of a Royal Commissioner, in 1908 T. Carletti. In 1908, it was reported that the number of native soldiers, the Askaris, was to be increased to 3,500 in Benadir and southern Somaliland. For administrative purposes the protectorate is divided into three parts: (1) The Benadir Coast, extending from the mouth of the river Juba to 20° 30' N.; (2) the Sultanate of Obbia, from 2° 30' N. to 5° 33' N. and (3) the Sultanate of Mijertain, from 5° 33' to 8° 3' N. Obbia and Mijertain are under native sultans.

In Dec., 1907, there was some fighting between the Italians, aided by friendly natives, and Abyssinian raiders. In response to Italian protests, King Menelek punished the chiefs of the raiders. Attacks were made on caravans near Merka early in the year, and a small expedition was sent against the tribesmen. Fighting occurred in March with slight losses to the Italians, but with a loss to the tribesmen estimated at 400 to 500. The Italians seized and fortified Danane. The position of the Mad Mullah was reported in 1908 to be an unenviable one. The Sultans of Obbia and Mijertain were his enemies and his territory was exposed to bombardment from warships. In October, fighting was again reported between the Italians and the forces of the Mullah, but the tribesmen were defeated and quiet was soon restored. It was believed that the Mullah would ultimately have to submit to Italian rule.

By the convention of May 16, 1908, with Abyssinia, the boundary line of Italian Somaliland was defined as running from Dolo, at the confluence of the Dawa and Ganale Rivers, to Mekunna, on the Wabi Shebeli, in such wise that the Rohanuin tribe is to be in Italian territory, and the tribes to the north of it in Abyssinian. The western boundary is the Juba River from Dolo to its mouth. The entire territory of Ogaden is to remain Abyssinian.

ITALY. A kingdom of southern Europe. Area, 110,688 square miles. Population (1901), 32,475,253; estimated at the beginning of 1908, 33,909,776. The movement of population in 1907 was as follows: Marriages, 260,072; births, 1,062,333 (exclusive of 48,021 still-births); deaths, 700,333, giving an excess of 362,000 births over deaths. The emigration in 1907 to transoceanic countries was 415,901 (511,935 in 1906), and to European and Mediterranean countries, 288,774, giving a total of 704,675. The number of transoceanic emigrants who returned in 1907 was 222,319 (129,347 in 1906), of whom 162,980 were from the United States (96,210 in 1906), 42,076 from the La Plata States (22,041 in 1906), and 16,074 from Brazil (10,200 in 1906). The population of the principal communes in 1901 was: Rome, 462,783; Naples, 563,540; Milan, 491,460; Turin, 335,656; Palermo, 309,694; Genoa, 234,710; Florence, 205,589; Bologna, 152,009; Venice, 151,840; Messina, 149,778; Catania, 149,295.

AGRICULTURE. The division of the soil of Italy is estimated as follows, in acres: Arable land, 48,168,773; forests and woodland, 10,231,822; mountain pasture, 1,928,167; non-productive, 10,077,425. In the last twenty years there has been a gradual increase in the arable land through reclamation and clearing, and a much larger increase in the annual product. The wheat crop in 1908 was officially estimated at 150,792,000 bushels, representing a decline of 15 per cent. from the 1907 harvest, which

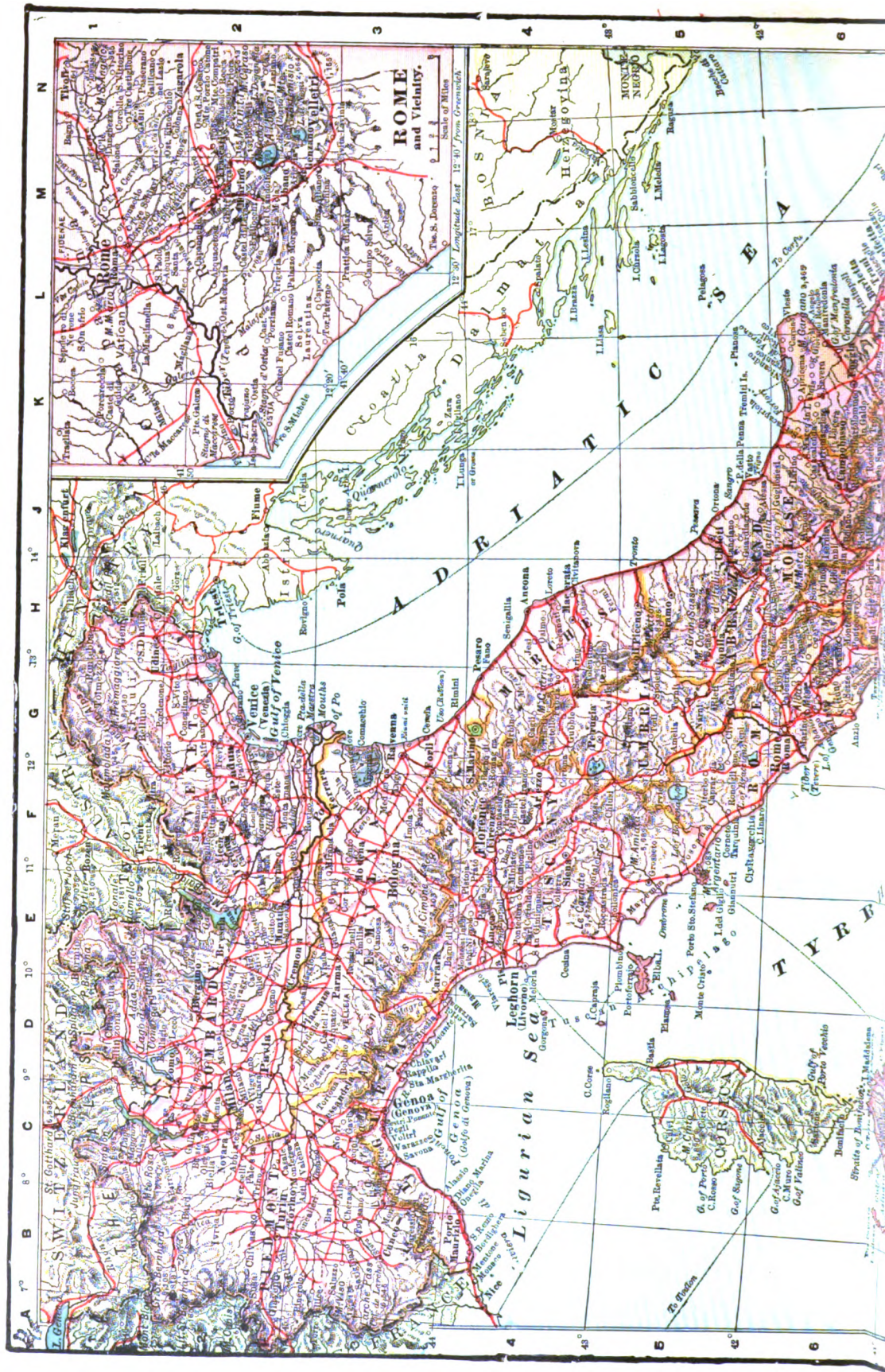
was 177,543,000 bushels, and about 10 per cent. from the average for 1901-1907 (166,934,000 bushels). The maize crop of 1906 was 93,103,000 bushels. The rice crop of 1908 was estimated at 25,000,000 bushels, the average for 1901-1905 having been 25,674,466 bushels. Since 1896, when the crop of rice fell as low as 10,669,957 bushels, there has been made considerable progress in irrigation, combating plant diseases, and selection of seed. During the first eight months of 1908 the export of rice was 28,941 metric tons, against 33,763 tons during the same period in 1907. The growth of industry in northern Italy and the consequent rise in the price of labor have resulted in the increased employment of agricultural machinery and increased output per acre. Thus in 1906 the maize acreage in the province of Milan was 673,780, and the yield, 20,620,070 bushels; in Venice, 705,862 acres and 17,861,911 bushels; and in the Mediterranean provinces, 878,417 acres and 8,373,638 bushels.

The area under vines in 1907 was 3,768,074 hectares (1 hectare=2.47 acres), against 3,778,800 in 1906 and an annual average of 4,074,000 during 1901-1905. The production of wine in 1907 was 53,900,000 hectolitres (1,423,876,300 gallons), against 29,800,000 in 1906 and an average of 38,200,000 in 1901-1905. The production of wine for 1908 was estimated at 46,850,000 hectolitres. The output for Sicily, included in the above, was 3,549,000 hectolitres in 1907, against 2,504,000 in 1906, and was estimated at 3,211,000 in 1908. A large part of the production of 1907 was still on hand at the end of 1908. The exportation of Italian wines is mainly to Switzerland, Central America, and South America. The area under olives in 1907 was 1,100,515 hectares, and the production of olive oil, 2,685,600 hectolitres, (70,945,000 gallons), against 1,100,500 hectolitres (29,072,000 gallons) in 1906. The prospects for the 1908 crop were reported poor. The output of lemons in Sicily and Calabria in 1907 was estimated at 6,900,000; the production of 1908 was expected to exceed this figure by 20 per cent. The production of cocoons in 1907 was estimated at 57,058,000 kilos (1 kilo=2½ lbs.). Deducting the large amount of cocoons used for reproductive purposes, the production of silk from the 1907 Italian cocoons was estimated at 4,820,000 kilos, besides 1,353,000 kilos of silk produced from imported cocoons. The total quantity of silk spun in 1907 thus amounted to about 6,173,000 kilos, against 6,047,000 kilos in 1906. Tobacco covered in 1906-7 12,444 acres, the production amounting to 14,494,000 pounds. The export of eggs, which had steadily increased during the past ten years, fell off considerably in 1907, owing to the competition of foreign countries. In the latter year it amounted to 22,877.9 metric tons, valued at 40,001,325 lire (1 lira=19.3 cents), against 33,142.8 tons and 56,342,760 lire in 1905, and 32,265.1 tons and 56,463,925 lire in 1906. The principal purchasers of Italian eggs are Switzerland, Great Britain, France, Germany, and Belgium.

MINING and MANUFACTURES. The total production of Italian mines in 1906 was valued at 92,718,000 lire; of the quarries, 48,086,000 lire. The production of sulphur in Sicily in 1907 was 403,000 metric tons, of which 334,014 were exported. Owing to the competition of Louisi-

ana sulphur, the Sicilian sulphur industry has been going through a crisis, the stock on hand at the end of 1907 being 576,377 tons. The production of the metallurgical establishments in 1906 was valued at 410,021,000 lire; of the chemical establishments, 102,325,000 lire. Northern Italy is rapidly becoming one of the great manufacturing centres of Europe, due mainly to the available enormous amount of water-power, estimated at 500,000 horse-power, which compensates for the lack of coal in the country. Italian and Swiss engineers are coöperating in the utilization of this water-power. Milan, Turin, and Genoa are the centres of manufacturing. At Legnano steam engines, turbines, and gas engines of the finest quality are turned out. The number of cotton spindles in the year ending Aug. 31, 1908, was 4,181,000, of which only 29,902 were reported running short time, and the mill consumption of cotton was 1,027,188 bales (702,659 American, 283,263 East Indian, 23,246 Egyptian). The number of spindles increased from 1,940,000 in 1900, and the mill consumption from 475,000 bales in 1900. The export of cotton goods, particularly yarn, showed a decided falling off in the first eight months of 1908 from the same period in 1907. There are 17 tobacco factories, the manufacture and sale of tobacco being a government monopoly. Almost all the tobacco consumed in the country is of home manufacture, but only about one-fourth is of home growth. Thus in 1906-7 the total consumption of tobacco was 47,785,000 pounds, of which 12,861,000 was of native, and 34,924,000 of foreign growth. About seven-eighths of the imports of leaf tobacco are American. The production, as well as importation, of beer is on the increase, the former having trebled in the last ten years. In 1906-7 the home production of beer was 359,921 hectolitres (1 hectolitre=26.4 U. S. gallons), and the importation, 100,453 hectolitres. The number of breweries in operation was 101, and the manufacturing tax was 5,295,000 lire. In 1907 there were built 26 ships of 85,370 tons. Ship-building showed a considerable decline in 1908, the gross tonnage on hand on Sept. 30 being 37,570, against 71,885 on Sept. 1, 1907.

FOREIGN COMMERCE. The special imports and exports of merchandise in 1907 amounted to 2,760,491,000 and 1,851,489,000 lire respectively, against 2,566,733,000 and 1,929,466,000 in 1906. The imports of precious metals in 1907 amounted to 168,143,000 lire; the exports, 5,811,000. The principal imports in 1906 were, in millions of lire: Cereals, 300.0; cotton, 245.3; raw silk, 232.0; coal, 214.9; machinery, 157.1; iron, 138.2; wood and timber, 97.3; hides and skins, 85.8; wool, 72.1; chemicals, 66.0; copper, brass, and bronze, 55.0; fish, 49.2; woollen tissues, 42.0; tools and instruments, 37.7; dyes and colors, 36.5; precious stones, 36.4; silk tissues, 36.0; articles of wood and straw, 33.9. The principal exports in 1906 were: Raw silk, 636.2; silk tissues 87.3; cotton tissues, 107.6; articles of wood and straw, 74.1; olive oil, 71.7; eggs, 56.5; hemp, 46.9; chemicals, 45.5; fruits, exclusive of almonds, 44.9; cheese, 38.5; wine, 36.1; hides and skins, 36.0; sulphur, 33.0; almonds, 26.1; marble and alabaster, 25.5; cotton yarn, 24.8; rice, 23.7; beans and peas, 23.3; zinc, 22.1; paper manufactures, 19.5; macaroni, etc., 19.3. The trade with the principal countries of origin and destination in 1906 is given on page 375



From and to	Exports	Imports
Great Britain	450.7	132.1
France	244.4	218.6
Switzerland	85.0	381.5
Austria-Hungary	227.7	139.4
Germany	398.1	256.6
Russia	193.5	10.5
Belgium	69.3	71.2
Rumania	86.4	6.1
Turkey	55.5	83.5
British India	119.1	22.6
China	80.5	3.1
Argentina	47.5	136.8
United States	311.3	240.7

COMMUNICATIONS. On Jan. 1, 1907, the merchant marine consisted of 513 steamers, of 497,537 tons, and 5,083 sailing vessels, of 503,260 tons. The length of railways in 1908 was 10,108 miles, of which 7,930 belonged to the State. The length of telegraph line in 1906 was 31,001 miles. In 1908 a law was adopted providing for the expenditure of \$107,000,000 during the next 16 years on the construction of 992 miles of new railways and the improvement of existing ones. The two largest appropriations—of \$29,000,000 each—are for the improvement of the direct lines between Florence and Bologna and between Genoa and Tortona; the improvement in the latter will shorten by 16 miles the distance from Milan to Genoa. In 1908 an English and a Swiss engineer received a concession from the Italian and Swiss governments for boring a tunnel through Mont Blanc. On the Italian side the tunnel will begin at Courmayeur, a town on the direct line to Turin; on the Swiss side, at Martigny, in the valley of the Rhone. The boring distance between the two places is 28 miles. The work was expected to last three years.

FINANCE. The revenue and expenditure in the fiscal year 1906-7 were 2,256,039,986 and 2,154,190,700 lire respectively. The budget for 1908-9 estimated the revenue at 2,128,936,549, and the expenditure at 2,085,322,791 lire. The principal estimates of revenue were: State property, including railways, 64,935,506; land tax, 83,280,000; house tax, 96,500,000; income tax, 247,900,000; inheritance taxes, 41,000,000; registration tax, 79,000,000; stamps, 70,000,000; customs, 290,000,000; octrois, 50,714,430; lottery, 74,000,000; tobacco monopoly, 254,000,000; salt monopoly, 80,000,000; excise, 145,400,000; posts and telegraphs, 121,260,000. The principal estimates of expenditure were, in lire: Interest on consolidated debt, 380,049,050, and on redeemable debt, 52,898,815; railway annuity, 24,906,004; floating debt (including railway guaranty of 79,919,253), 110,983,928; collection of taxes and management of monopolies, 232,183,419; justice, 50,968,142; public instruction, 85,671,715; police, 43,350,840; prisons, 337,065,580; public works, 127,867,730; posts and telegraphs, 128,175,421; army, 293,781,490; navy, 158,397,042. The total debt on July 1, 1908, stood at 493,965,852, of which 374,033,014 was consolidated.

ARMY. Military service is compulsory and universal, the army being organized into the First Line, or permanent army, the "mobile militia," corresponding to the Landwehr, and the territorial militia, corresponding to the Landsturm. The total period of service is 19 years, beginning at the age of 20. The young men of each year are divided into three classes: the first class goes to the permanent army; the second

class to the permanent army, but with "unlimited leave"; and the third, those exempted from military service for various reasons, to the territorial militia. There are 96 regiments of infantry; 24 regiments of cavalry; 24 regiments of field, 1 of horse, and 1 of mountain artillery; 3 regiments of fortress and 3 of coast artillery (72 companies in all); 5 regiments of engineers, and a railway battalion, in the permanent organization. There are also 22 battalions of Alpini or frontier troops, and the Carabinieri or military police force, recruited by selection from the permanent army. The actual peace strength of the army in 1908 was 236,000 men, although the authorized strength in the preceding year was about 285,000 men. The strength of the field army is about 400,000, and that of the Landwehr about 200,000. The reservists of all classes are estimated at 496,000, the mobile militia at 300,000, and the territorial militia at 2,285,000.

The Royal Military Committee on Reforms Needed in the Army in its report recommended the simplification of the complicated bureaucratic machine of the army, with a view to decentralization of the War Department, and giving the military commanders more power; a general increase in the army, and changes in the organization of the various corps. The pay of the officers was increased during the year, a new field uniform was adopted, and the number of exemptions from service was decreased. A large supply of new field artillery material was purchased from Krupp, and a volunteer cyclist and automobile corps was organized to assist in the national defence.

NAVY. The effective navy in 1908 consisted of 14 first class battleships, aggregating 180,090 tons; 2 second class battleships, 19,500 tons; 7 armored cruisers, 49,730 tons; 13 protected small cruisers, 34,400 tons; 9 gunboats, 6,740 tons; 13 destroyers, 4480 tons; 118 torpedo boats, 14,920 tons. Total, 176 ships, of 309,860 tons, besides 4 submarines. The crews numbered 29,000. The increase in 1907 was 19,540 tons. There were in construction 4 battleships, of 54,000 tons, and 4 armored cruisers, of 39,200 tons. The grand autumn manoeuvres were of much greater importance than those of previous years, owing to the principles involved. The general idea comprised: First, an invasion by sea; next, a disembarkation of troops; finally, a series of land operations. Powders are being developed which are more stable, and cause less corrosion. Captain Monni, Royal Italian Navy, claimed that the carbonic acid gas produced by the explosion of the powder takes from the steel of the gun the carbon necessary to form carbonic acid, thereby giving rise to corrosion. He proposes, therefore, to supply the necessary carbon by adding charcoal to smokeless powder during its manufacture. The resulting powder burns at a much lower temperature; and a small increase in the weight of the charge is necessary.

GOVERNMENT. King Vittorio Emanuele, born Nov. 11, 1869, succeeded his father on July 29, 1900. The cabinet at the end of 1908 included G. Giolitti, Premier and Minister of Interior; T. Tittoni, Foreign Affairs; V. E. Orlando, Justice and Ecclesiastical Affairs; P. Lacava, Finance; P. Carcano, Treasury; S. Casana, War; Admiral Carlo Mirabello, Navy; L. Rava, Public Instruction; P. Bertolini, Public Works; F. Cocco-Ortu, Agriculture, Industry, and Commerce; Dr. C. Schanzer, Posts and Telegraphs.

HISTORY.

THE MINISTRY. The Giolitti Ministry continued in office throughout the year 1908. In December, 1907, Signor Casana, though a civilian, was appointed Minister of War, the office having hitherto been filled by military men. The Chamber had shown itself unwilling to grant the moneys demanded by a military minister, believing that no account was taken in these demands of financial considerations but only of the military aspects of the case. Hence it was necessary to depart from precedent and select a civilian. Under Signor Casana the Army bill was put through in the course of the session, and the extraordinary supplies required for frontier fortifications were duly voted. Ex-Minister Nasi, against whom charges of corruption had caused much scandal in 1907, was found guilty by the Senate of the least serious charge that had been brought up against him, namely, peculation, and was condemned (Feb. 24) to eleven months' imprisonment, and four-and-a-half years' interdiction from holding office. There was much popular sympathy with him. He had admittedly used the public funds, but for his political advancement and not for private ends, and public opinion in Italy was not censorious in the matter, as appeared later in the year when in July he was re-elected Deputy for Trapani by a large majority, his programme being "Home Rule for Sicily."

THE STRIKE IN PARMA. Agrarian agitation caused an agricultural strike which was declared on May Day, involving, it was said, some 40,000 workmen. Both sides claimed successes, but both suffered severely from suspension of work. In June, largely owing to the efforts of the Church, arrangements were made for a meeting between the Agrarian Association, representing the landowners, and the Representatives of the Chamber of Labor for a discussion of terms of settlement. Toward the end of June some rioting occurred, but in the following month the strike died out from lack of funds. Meanwhile the working-classes had suffered severely. The Socialists who are strong among the agricultural workers of northern Italy, were the leading spirits in the Parma strike.

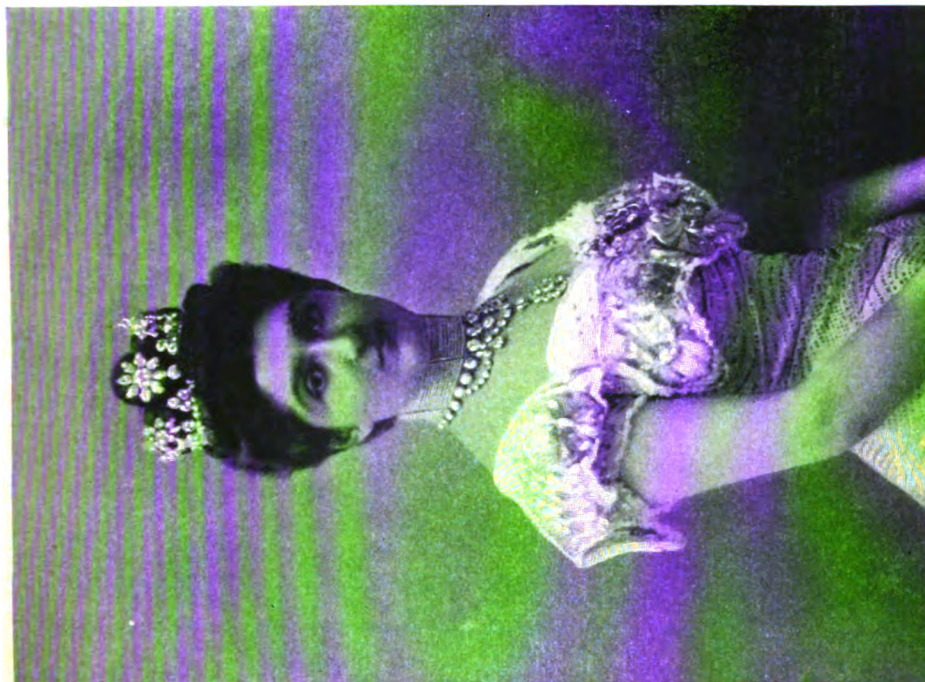
FOREIGN AFFAIRS. For an account of the fighting with the Abyssinians in the Benadir hinterland and the subsequent convention with Abyssinia, see **ABYSSINIA**. The fighting in Benadir came up for discussion in the Chamber and led to an inquiry as to the colonial policy. The explanation of the government's course by Signor Tittoni, Foreign Minister, was received with approval. Early in the year relations with Turkey became strained in consequence of the Porte's refusal to allow Italian post offices at Constantinople, Salonica, and elsewhere, in spite of treaty obligations. Italy also complained of obstacles that were placed in the way of her Tripoli coasting trade. The Italian fleet was mobilized at Gaeta on April 19, and thereupon the Porte agreed to Italy's demands on both these points. Signor Tittoni defined the government's attitude toward the matter of the Balkan railway (See **BALKAN QUESTION**) and convinced the Chamber that the ministry fully understood the question and would afford ample protection to Italian interests. As to Austria's annexation of Bosnia and Herzegovina, he admitted in the course of a debate in the first week in December that it was a matter that

concerned the signatories of the Treaty of Berlin. (See **AUSTRIA-HUNGARY**, concluding paragraph.) On Mar. 23, the German Emperor and Empress visited the King and Queen of Italy.

THE SCHOOL QUESTION IN PARLIAMENT. The question of religious instruction in schools gave rise to one of the important debates of the Parliamentary session. Signor Bissolati, a prominent Socialist deputy, brought in a motion for the secularization of the primary schools, excluding religious instruction in any form. By the Cassati law of 1859 religious instruction was required in the primary schools and parents who did not wish their children to receive it were obliged to prove that they received it at home. This law, however, was not applied in all the provinces, and in some it was not even promulgated. In 1870 a ministerial circular prescribed obligatory religious teaching in the primary schools of the communes, but only on condition that a certain number of parents demanded it. But the matter was left uncertain. On one occasion the Chamber voted that the communes might withhold religious instruction, and the law of 1877, modifying the Cassati law, did not mention religion among the obligatory subjects.

An unsettled point was whether the municipal authorities could refuse religious instruction when the parents demanded it. Opinions differed and the government was asked for a definite ruling. It finally decided that religious teaching should not be given except on demand of the parents and on approval of the municipal authorities, but if the majority of the Council disapproved, the parents were to have the right to have religious instruction given to their children by duly qualified teachers paid by themselves. The question assumed importance in party politics. Already in the preceding elections the Catholics had shown a tendency to unite against the extremists, especially against the Socialists. On the present issue they joined with the Conservatives in bringing evidence that the people were opposed to the suppression of religious instruction and that on the contrary they wished it generally enforced. Petitions with thousands of signatures were received from regions in which the Cassati law had never been promulgated. Deputies were asked to vote against both the Bissolati measure and the government's solution. On the other hand, the Socialists bestirred themselves in the name of freedom of conscience for the secularization of instruction. Their aim appeared to be the alignment of all the anti-clerical forces and ultimately the formation of an anti-clerical bloc, consisting of the hitherto discordant groups of the extreme Left. This, it was pointed out, would unite the Republicans and the Radicals and withdraw supporters of the ministry by appealing to their anti-clerical principles.

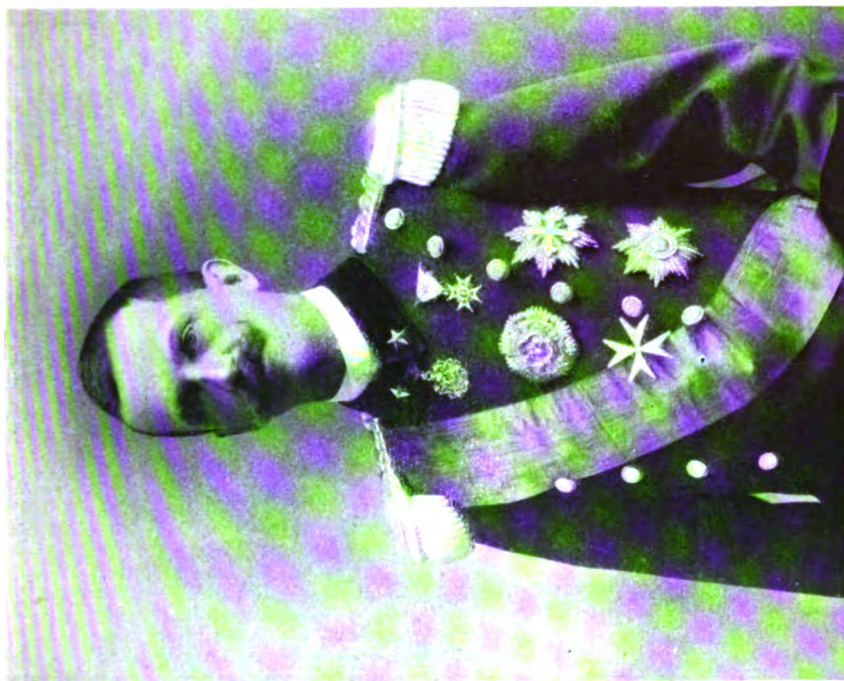
The spirit of such a programme, however, was alien to the tendency of Italian politics, and the ministry won an easy victory. Signor Giolitti declared his opposition to a policy which looked to the formation of an anti-clerical party with political persecution as its object, and adverted to its inconsistency with the customary tolerance of Italians in religious matters. Signor Rava, Minister of Public Instruction, demonstrated the liberality of the government's pro-



QUEEN ELENA OF ITALY

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Courtesy of the "Outlook"



VICTOR EMMANUEL, KING OF ITALY

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posals which left the pupils free, and did not compel them to receive teaching of which their parents disapproved. Nor were teachers required to give instruction that did not accord with their beliefs. Moreover, it left the communes free to decide the question as they chose and spared them a source of endless quarrel and debate in the administration of education. The Chamber rejected the Bissolati motion by a majority of over 150. The Catholics voted against it and also against the order of the day which would have signified approval of the government's solution.

OTHER EVENTS. Toward the end of May, the Woman's Congress began its session in Rome, the first meeting ever held in Italy. The Queen attended the opening meeting. Much comment in the newspapers was caused by an assault on some Scottish students near Rome in April. The trial was held at Arica and the verdict rendered on Oct. 21 found four of the accused guilty and sentenced them to six years' imprisonment. The Institute of Agriculture was opened by the King on May 23. The Papal decree reorganizing the Roman Curia and the Congregations went into effect June 1. Among other changes, it deprived the Congregations of the Propaganda of jurisdiction over Great Britain, Canada, the Netherlands, and the United States. For the great earthquake which visited Sicily and Calabria on Dec. 28, see EARTHQUAKES.

IVORY COAST. A French colony in West Africa. Its area is estimated at 120,000 square miles, and its population at 1,955,000. The seat of administration is at Bingerville, formerly called Adjame. The agricultural products are maize, plantains, bananas, pineapples, and other fruits. Coffee culture has been successfully introduced. The forests furnish mahogany, cocoanuts, palm oil, and rubber. Gold mining is assuming importance. In 1907 the imports and exports were valued at 12,103,616 and 10,243,816 francs respectively, the trade with France amounting to 2,925,000 francs of imports and 3,201,000 francs of exports. The exports are mainly rubber, palm-oil, and mahogany. The ports are visited by French, British, German, and Belgian ships. A railway is being constructed from Abijean inland; in 1908 it was 51 miles long. Telegraph lines connect the principal towns and extend to adjoining colonies. The administration is in the hands of a Lieutenant-Governor, who is under the Governor-General of French West Africa (q. v.).

JACKSON, HENRY. An American soldier, died on Dec. 9, 1908. He was born in Canterbury, England, on May 31, 1837, and obtained a commission in the British Army which he resigned in 1863 to come to America, where he enlisted as a private in the Federal army, was commissioned second lieutenant of volunteers in 1865 and first lieutenant the same year, was mustered out in 1866, and commissioned second lieutenant of cavalry in the regular army. He became first lieutenant in 1867, Captain in 1876, major in 1896, lieutenant-colonel in 1900 and colonel in 1901, retiring the same year. He was made brigadier general on the retired list in 1904 for Civil War service.

JAMAICA. A British island in the West Indies. Area, exclusive of its dependencies, 4,207 square miles; population (1907), 830,261, mostly negroes, mulattoes, Chinese, and East Indians. Kingston, the capital, had 46,542 inhabitants in

1891. The principal products and exports are bananas, which constitute about one-half the export, oranges, ginger, pimento, coffee, cacao, cocoanuts, sugar and rum, cotton, tobacco, and tea. The sugar output in 1907-8 was 13,000 tons; in 1908-9, 12,000 tons. The cotton production in 1907-8 was 6,250 pounds, against 19,080 pounds in 1906-7, and 88,133 pounds in 1905-6. The export of ginger in 1907-8 was about 1,400,000 pounds, the United States and Great Britain taking about 600,000 pounds each. The imports and exports in 1907-8 were valued at £2,914,013 and £2,376,202 respectively. The trade is chiefly with the United States, followed by Great Britain. There are 185 miles of railway and 889 miles of telegraph line. In 1907-8 the revenue was £1,021,937; the expenditure, £937,204; and the public debt, £3,736,690. The military garrison in 1907-8 was 1,061, besides the local forces. Attached to Jamaica are the Turks and Caicos Islands (q. v.), and the Cayman Islands. The latter have an area of 225 square miles and a population of 6,000. The Governor in 1908 was Sir Sydney Olivier.

Severe shocks of earthquake occurred on the morning of Jan. 3, 1908, at Savannah la Mar, and on the morning of the following day at Brownstown. Considerable damage was reported from Kingston and other places on the south shore. The Legislative Council was opened by the Governor in January. He referred to the fact that Kingston had been virtually rebuilt, and declared that it owed this quick recovery chiefly to those who had contributed to the relief fund. The year began with excellent financial prospects, and with a larger cash balance than at any time in recent years. In March the Council appropriated £100,000 as the first instalment of the insurance fund against future disasters. In December the policy holders who suffered from the earthquake and fire of the previous year held a meeting and unanimously decided to accept 85 per cent. of the face value of their policies, besides legal costs, which the insurance companies were understood to be willing to pay. The amount involved was fully £1,000,000.

JANSSEN, PETER. A German painter of historical subjects, died on Feb. 20, 1908. He was born at Düsseldorf, in 1844; learned the rudiments of art from his father, who was an engraver, and subsequently studied under Sohn and Bendemann at the Academy in his home town. In 1872 he executed a mural painting, "The Colonization of the Baltic Coast," for the Exchange at Bremen, which attracted widespread attention. He became professor at the Düsseldorf Academy in 1877 (director in 1895), and was elected a member of the Berlin Academy in 1885. Other notable mural paintings by him are the "Seven Momentous Episodes in the History of Erfurt" (1882), in the Town Hall at Erfurt, and "Human Life," "Imagination," "Beauty," and "Nature," in the Düsseldorf Academy. He also devoted considerable attention to oil painting. His "Walther Dodde and the Peasants of Berg" (now in the Düsseldorf Gallery) won the great gold medal in Berlin in 1893. The most notable example of his work in the United States is "Peter Denying Christ," in the Pennsylvania Academy of Fine Arts, at Philadelphia.

JAPAN. An insular empire of eastern Asia, consisting of Japan proper, Formosa (q. v.), the southern half of Sakhalin (q. v.), the protectorate of Korea (q. v.), and the lease of Kwantung

(q. v.). The area of Japan proper is 147,651 square miles. In 1903 the population numbered 46,732,876 (23,601,640 males and 23,131,236 females); in 1907 it was estimated at about 49,268,000. The number of foreigners at the end of 1906 was 19,129 (12,463 Chinese, 2181 British, 1,657 Americans, 686 Germans, 540 French, 254 Koreans, 231 Russians, 196 Portuguese, etc.). The population of the principal cities in 1903 was: Tokio, the capital, 1,818,655 (1906, 2,063,828); Osaka, 995,945; Kyoto, 380,568; Yokohama, 326,035; Nagoya, 288,639; Kobe, 285,002; Nagasaki, 152,293 (1907, 173,118); Hiroshima, 121,196; Sendai, 100,237. The population of Tokio increased 40 per cent. during the decade 1897-1906. The number of Ainos in Yezo, or Hokkaido, at the end of 1906, was 17,113. The immigration of Japanese into Hokkaido in 1906 was 66,793; their emigration from Hokkaido, 10,092.

FISHERIES. About one-tenth of the population is dependent for its livelihood on the fisheries. In 1908 the fishing fleet consisted of 74 steamers, 559 sailing vessels of European type, and 426,429 sailing vessels of native type. The number of vessels lost during the year was 949, and the number of lives lost was 1,230. The value of the catch in 1906 was \$27,227,574; of other sea products, such as fish oil, fish manure, shark fins, etc., \$16,704,554; of seals and sea otters taken by pelagic fishing vessels, \$12,450,000; giving a total value of \$56,382,128. There are about 20 whaling steamers. The number of whales captured in Japanese waters in 1907 was 806, against 268 in 1906, besides some 400 whales in Korean waters. The whaling industry has developed almost altogether since the Russo-Japanese war. The Hokkaido salmon fisheries have declined from about 120,000 koku (1 koku = 5.1 bushels) in 1888 to about 38,000 koku in 1907. Government hatcheries are to be established to remedy this condition.

MINING. The principal mineral products, in the order of their annual values, are coal, copper, petroleum, gold, silver, and iron. The output of coal in 1907 was 13,716,488 tons, of which 11,126,438 tons, or nearly 81 per cent., was mined on the island of Kiushiu. The bulk of the remainder came from Hokkaido. The copper production in 1906 was valued at 25,751,541 yen (1 yen = 49.8 cents). The production of pig lead in 1907 was 5,090,246 kin (1 kin = 1.323 lb.). The greater portion of the petroleum is obtained in the province of Echigo; in 1907 the production was about 470,000 barrels. This quantity is insufficient for domestic needs, and about \$7,500,000 worth has to be imported annually. The two largest petroleum companies in the Echigo province are the Japan and Takarada companies. The latter was established in 1893 with a capital of 15,000 yen, which increased through accumulation of profits and the absorption of 127 petty companies and guilds to 11,650,000 yen in 1908. The average rate of dividend for 16 years is stated to have been 38.4 per cent.

FORESTRY. Forests occupy 60 per cent. of the total area, or 55,000,000 acres, of which about 30,000,000 belong to the State, 5,000,000 to the Imperial household, and the rest to private persons or local corporations. The income from the State forests was estimated at nearly 13,000,000 yen in 1908-9, against 3,500,000 yen four years ago. In 1907 a law was adopted empowering the administrative authorities to take steps for the

preservation of forests, their replanting, and profitable working. In the past considerable grants of forest land were made from the holdings of the Imperial family to members of the new nobility, and from time to time the demand has been made that the State part with some of its forests and dispose of them to private persons.

AGRICULTURE. Six-tenths of the people are engaged in agriculture. Owing to the mountainous nature of the country, only about one-sixth of the total area is under cultivation, and individual holdings are mostly small, varying from one-half to ten acres. The implements are usually small and primitive, the irregularity and small size of the fields preventing the use of large machinery. Irrigation is carried on extensively, mostly by canals. The irrigation works are built by associations, and are under the control of a county or village official. The principal crops are rice and barley. In 1907 the rice crop was 49,052,065 koku (1 koku = 5.118 bushels); the estimate for 1908 was 53,536,412 koku—the highest in ten years. The increase is attributed not to exceptionally favorable climatic conditions, but to the extension of the area, due to higher prices. The barley crop in 1907 was 22,167,486 koku, against 20,365,445 in 1906. The area under wheat in 1906 was 1,085,839 acres, and the production, 24,699,440 bushels. The wheat production is not sufficient for the needs of the population, and there were imported in 1907 119,334,468 pounds of wheat and 162,729,996 pounds of wheat flour. Other important agricultural products, with their output in 1906, are, in bushels: Soy beans, 17,655,973; small red beans, 4,449,408; Italian millet, 11,478,386; millet, 18,006,247; buckwheat 5,970,319. The following are in pounds: Potatoes, 1,123,413,350; sweet potatoes, 6,304,297,620; radishes, the principal vegetable consumed in the country, 5,244,950,658; carrots, 196,574,083; burdock, 276,516,818; bamboo sprouts, 115,477,963; ginger, 48,770,327; cotton seed, 13,270,985; hemp, 22,127,924; leaf indigo, 58,804,502; leaf tobacco, 97,165,741; sugar cane, 1,455,043,119; paper mulberry (dried bark), 68,797,266; mitsumata (dried bark), 465,599,833; vegetable wax, 97,146,002; rush for matting, 92,635,059; dried menthol leaf, 20,774,156; peaches, 49,291,672; pears, 114,968,085; persimmons, 383,118,953; apples, 46,945,305; grapes, 20,467,495; oranges, 410,334,874; tea, 58,362,758. Tea, rice, and camphor are the only important agricultural exports. The area of tea plantations in 1907 was 125,727 acres. The export of tea in 1907 was 39,071,096 pounds—a decrease of 1,644,814 pounds from 1906. The camphor trade is a government monopoly. In the first eight months of 1908 the export of camphor was 1,938,000 pounds, valued at \$844,500, against 3,236,667 pounds, valued at \$2,030,000, in the same period in 1907. The fall in the price of camphor, as well as in the foreign demand for the Japanese product, is ascribed to the introduction of German artificial camphor and the entrance of China, Ceylon, and the Malay Peninsula into the market as competitors of Japan. The export of silk in 1907 was 9,273,090 catties (1 catty = 1.32 lbs.), valued at 116,429,000 yen; in 1908 down to Dec. 14, 9,958,000 catties, valued at 100,743,000 yen.

MANUFACTURES. In 1908 there were in Japan 1,550,929 cotton spindles, consuming during the year 878,178 bales of cotton, against 1,274,000 spindles and a consumption of 700,000 bales in 1900. In the spring of 1908 the condition of the cotton-spinning industry was very discouraging,

particularly since the increased capacity for production planned during the boom was becoming available just at the time when the supply of yarn exceeded the demand. The mill owners reduced production by 27½ per cent. for three months beginning with May 1; nevertheless they had large stores of unsalable yarn on hand. The Kanegafuchi and Fuji companies, whose last dividends were 22 and 25 per cent respectively, were expected to reduce their dividends to 10 per cent. Japanese mill owners ascribed the depression to the loss of a large part of the Chinese trade. According to them the sale of Japanese yarns in China fell from 277,135 bales in 1903 to 190,868 bales in 1907, while those of Indian yarns increased from 626,970 to 631,298 bales, and those of Chinese yarns increased from 170,000 to 321,675 bales. The comparison should, however, have been made with 1906—a year of prosperity, and according to the Chinese official returns, the imports of Japanese yarns in 1907 fell off by only 90,000 piculs, against a falling off in imports of Indian yarns of 200,000 piculs. (See CHINA, *Commerce*.) The imports of Japanese plain cotton fabrics into China in 1907 even showed an increase, having been 840,401 pieces, against 733,436 pieces in 1906.

Reduced production was also decided on, about the same time, by the three sugar refining companies of Japan. An agreement was signed, whereby the total annual production for domestic consumption was reduced to 225,000 bags (155,000 being assigned to the Dai Nihon Company, 45,000 to the Yokohama Company, and 25,000 to the Kobe Company), and a common office was established for fixing prices and making sales, though deliveries will be made direct from the refineries. The production for export was not limited.

Overproduction is also reported from the flour milling industry. Before the Russian War the domestic mills using machinery turned out annually about 1,500,000 sacks of flour. After the war the government raised the duty on flour to 30 per cent., while leaving the duty on wheat at 15 per cent. The result was that the industrial boom brought a number of large flour mills into existence, and the production was increased to 8,367,000 sacks. Adding the 2,300,000 sacks turned out annually by the old-fashioned water mills, there is an annual production of 10,700,000 sacks. The domestic consumption, on the other hand, is reckoned at 8,000,000 sacks, thus leaving an oversupply of 2,700,000 sacks. The mill owners contend that they cannot use the surplus for export, unless the government should give them a rebate of the duty on wheat.

The Wakamatsu iron foundry, a government enterprise, has been turning out pig iron since 1901, the iron ore coming from the Ta-yeh mines, China (q. v.). At present the output of pig iron is about 130,000 tons annually, and recent improvements and extensions have enabled the works to turn out rails, bar iron, locomotives, heavy guns for the army and navy, and materials for warships and other vessels. Owing, however, to the general business depression, work was greatly reduced in 1908. At the same time the government could not dismiss any of the 8,000 operatives, as they have been trained during a period of seven or eight years, and their skill represents an asset. According to a statement of the superintendent of the works, made in the early part of 1908, the foundry cannot at present produce iron as cheaply as it may be bought from

foreign countries, owing to the high price of coal and the fact that the ore has to be imported. The only hope, so far as he could see, lay in tariff revision, which would be possible in 1911.

The shipbuilding industry showed considerable growth in 1907 and in 1908 Japan was the only important shipbuilding country to have increased the tonnage under construction. On Sept. 30, 1908, the shipbuilding on hand was 97,580 gross tons, against 80,800 tons on the same date in 1907.

The capital invested in new enterprises and in extensions of old enterprises, from June, 1905, to May, 1908, is shown in the following table by groups of industries, in yen:

	Capital of new enterprises	Extension of capital
Banking	57,640,000	102,532,000
Spinning	37,603,000	52,605,000
Electric	138,580,000	39,760,000
Mining	92,720,000	20,000,000
Marine products	33,125,000	1,760,000
Railroads	348,804,000	119,469,000
Manufacturing	382,131,000	127,262,000
Navigating	44,000,000	14,900,000
Insurance	41,600,000	21,250,000
Commerce and others	157,653,000	16,453,000

Of this total, over 937,000,000 yen were invested in 1906 and nearly 675,000,000 in 1907.

FOREIGN COMMERCE. The imports and exports (merchandise only) of Japan in 1907 amounted to 494,467,000 and 432,413,000 yen respectively; in 1908 (preliminary returns), 435,687,000 and 376,796,000 yen respectively. The imports and exports of the precious metals in 1907 were 8,256,503 and 18,759,285 yen respectively. The principal imports in 1907 were, in yen: Cotton, 115,642,000; rice, 30,931,000; oil and bean cakes, 21,042,000; iron manufactures, 20,910; sugar, 19,865,000; cotton goods, 15,540,000; wool, 14,353; petroleum, 14,325,000; iron, 14,047,000; woollen goods, 10,934,000; beans, 10,026,000; wheat and wheat flour, 9,882,000; sulphate of ammonia, 8,227,000; indigo, 5,877,000; machinery, 5,736,000. The principal exports in 1907 were, in yen: Silk, 116,889,000; silk goods, 34,647,000; cotton yarns, 30,343,000; copper, 29,263,000; coal, 19,053,000; cotton manufactures, 14,490,000; tea, 11,756,000; matches, 9,44,000; pottery, 7,216,000; silk floss, 6,243,000; matting, 5,743,000; camphor, 5,027,000. The trade with the principal countries of origin and destination in 1907 was as follows, in yen:

From and to	Imports	Exports
Great Britain	116,245,000	22,443,000
France	7,025,000	42,533,000
Germany	47,668,000	11,256,000
Other European countries	24,275,000	18,134,000
Korea	16,372,000	32,792,000
China	67,992,000	106,020,000
Hongkong	821,000	24,386,000
French Indo-China	8,663,000	250,000
Dutch East Indies	22,039,000	2,261,000
British East Indies	74,593,000	13,088,000
Other Asiatic countries...	9,616,000	12,971,000
United States	80,697,000	131,101,000
Other countries	18,461,000	15,179,000

Direct Japanese exports to Russia amounted to only some 2,000,000 yen, but Japanese papers

state that exports *via* Great Britain, France, and Germany amounted to 60,944,000 yen.

COMMUNICATIONS. The number of ships entered in the foreign trade in 1907 was 15,831, of 20,336,695 tons. Of the tonnage, 8,867,436 was Japanese, 6,279,357 British, and 1,851,468 German. The merchant marine on Jan. 1, 1908, consisted of 2,139 steamers, of 1,115,880 tons; 4,728 modern sailing vessels, of 365,559 tons; and 20,263 native boats and junks, of 2,497,571 tons. The annual subsidies to the merchant marine to the end of 1909 amount to 13,190,695 yen. The total length of railway on March 31, 1907, was 4,805 miles, of which 3,114 miles belonged to the State and 1,691 miles to companies. The State lines showed during the year ended March 31, 1907, a net profit of 17,230,716 yen after paying working expenses; private lines, 21,166,602 yen. It is the government's policy to extend and improve the State railways so far as possible. The assignments in the budget for this purpose have been as follows: 1904-5, 8,900,000 yen; 1905-6, 1,820,000; 1906-7, 10,260,000; 1907-8, 29,593,000; 1908-9, 33,090,000; 1909-10, 30,180,000. The length of telegraph line in 1907 was 21,441 miles.

BANKS. The business depression which started in the latter part of 1907 was clearly reflected in the rapid contraction of the money deposited in the banks. In Jan., 1908, there were 2,140 banks and their branches throughout the empire, and the sums deposited in them amounted to 1,656,390,000 yen—a reduction of 64 million yen from Dec., 1907, and 160 million yen from Nov., 1907. On the other hand, the post office savings banks showed the usual increase in their deposits, which stood at 100,163,069 yen in June, 1908, against 80,783,195 in 1907, 58,560,428 in 1906, 45,869,225 in 1905, 34,140,826 in 1904, and 30,742,028 in 1903.

FINANCE. The revenue and expenditures in the fiscal year 1906-7, ending March 31, were 514,852,319 and 463,875,135 yen respectively. For 1907-8 the budget estimates were 616,455,343 and 616,441,047 yen respectively, and for 1908-9 they balanced at 619,797,671. The principal estimates of revenue for 1908-9 were, in yen: Land tax, 85,718,594; income tax, 27,571,513; licenses, 21,854,307; excise taxes, 113,190,064; customs duties, 41,410,920; other taxes, 9,852,385; stamps, 20,374,582; income from State enterprises and domains, 144,281,223 (posts and telegraphs, 38,585,597; forests, 12,963,854; monopolies, 52,978,553; railways, 37,054,470); total ordinary revenue, 475,737,999; extraordinary revenue, 144,059,672. The principal estimates of expenditure for 1908-9 were, in yen: Civil list, 3,000,000; public debt, 176,839,532; army, 107,416,773; navy, 80,961,592; public instruction, 6,013,351; justice, 11,623,273; agriculture and commerce, 17,489,187; communications, 85,036,874. The public debt stood on March 31, 1908, at 2,276,346,452 yen, consisting of 1,110,645,228 yen for the internal debt and 1,165,701,224 yen for the external debt.

ARMY. Military service is universal and compulsory, liability commencing at 17, actual service at 20, and ending at 40 years of age. All those capable of bearing arms are divided into two classes, known as the "absolutely fit" and the "fit," the annual contingent fixed by Imperial decree for the active army being selected entirely from the "absolutely fit" by drawing lots. The period of service is divided as follows: 2 years for infantry, and 3 for other arms, in the first line of active army (Geneki); 5½ years

(or 4½) in the active army reserve (Yobi), with 60-day periods of training; 10 years in the second line (Kobi), corresponding to the German Landwehr, with two 60-day training periods; 2½ years in the territorial or home defense army (Kokumin), corresponding to the German Landsturm, which completes their 20 years' service. The supplementary (Ersatz) reserve for making good the waste of war is called the Hoju, and consists of the "absolutely fit" not required by the annual contingent for the first line, and of as many of the "fit" as are needed to make up the authorized strength.

The reorganization under the law of 1907 was proceeding satisfactorily, and the scheme was to be completed in 20 years. The division is the highest unit in the army, and there are 18 line and 1 guard divisions in service, in addition to a considerable number of independent troops, such as 2 brigades cavalry, 3 brigades field artillery, 3 battalions mountain artillery, 6 regiments of heavy artillery, 1 brigade communications troops, 1 regiment railway troops, 1 telegraph battalion, etc.

The annual contingent for the active army varies greatly; it was 17,000 men in 1888 and 120,000 in 1906, this latter contingent entering the service in December, 1907, and having been mobilized in 1908. The number of men reaching the age of 20 in 1907 was 520,000, which were assigned as follows: 120,000 for the Geneki, 62,000 for the Hoju, 104,000 for the second part of the Kokumin, 52,000 excused for family or professional reasons, and 182,000 exemptions. A résumé of the military forces gives the following figures: Fully instructed men, 1,638,000; of whom 742,800 belong to the active army and its reserve, 780,000 to the reserve army (Kobi), and 115,200 to the Kokumin, 1st part: partly instructed men 846,300; reserve strength of men available but not instructed, about 3,000,000. The actual number of men with the colors in 1908 was about 220,000, and this army when sent into the field for active service would number 570,000. Constant improvements were being made in material and training, there having been no respite after the war with Russia. The Japanese in 1908 adopted a new fuse for the field gun; began the issue of the Arisaka rifle to the troops; completed arrangements to construct all war material in home factories; and held important manœuvres, which were characterized by exact and precise reconnaissance of the hostile positions, skilful choice of defensive positions, handling of reserves, and use of machine guns.

NAVY. In 1908 the navy consisted of 18 first class battleships, aggregating 194,110 tons; 2 second class battleships, 17,150 tons; 2 armored coast defense vessels, 8,400 tons; 14 armored cruisers, 142,000 tons; 3 protected large cruisers, 18,370 tons; 18 protected small cruisers, 54,230 tons; 7 unprotected small cruisers, 11,050 tons; 54 destroyers, 20,568 tons; 18 torpedo boats, 2,700 tons. Total 131 ships, of 468,578 tons, besides 7 submarines. The crews numbered 39,712. The increase in tonnage in 1907 was 44,098 tons. There were under construction 3 battleships, of 60,800 tons, and 6 armored cruisers, of 95,800 tons, besides minor craft. The armament of the *Aki* and *Satsuma* was changed, in November, to 10-12", 50 cal.; and 24 R. F. guns, probably 10-6", and 14-4.7". It was previously believed that they were to have 4-12", and 12-10" guns. In the autumn manœuvres, the fleet was divided into three divi-

sions, the first representing a Japanese squadron; and the other two, attacking forces. The attacking forces had their base in the south of Formosa; and attempted to blockade the Sasebo naval station, and the Korean channel. Operations commenced about the middle of October; and a decisive battle was to be fought off Sasebo on or about Nov. 15th. After the exercises, the Emperor reviewed the whole fleet at Kōbe. The total tonnage of the 144 units engaged was said to have been about 400,000.

GOVERNMENT. The Emperor Mutsuhito, born Nov. 3, 1852, succeeded his father Feb. 13, 1867. The cabinet at the end of 1908 consisted of Premier and Finance Minister, Marquis Katsura; Foreign Affairs, Baron Komura; Interior, Baron Hirata; War, General Viscount Terauchi; Navy, Vice-Admiral Baron Saito; Justice, Viscount Okabe; Education, G. Komatsubara; Agriculture and Commerce, Baron Oura; Communications, Baron Goto.

HISTORY.

The opening of the year 1908 found the foreign relations of Japan in a satisfactory condition. The alliance with Great Britain had been renewed. With France and Russia *ententes* had been established, in which the participating Powers reciprocally guaranteed their territorial possessions in eastern Asia. In course of the year this chain of alliances and *ententes*, all aiming at the maintenance of the *status quo* in eastern Asia and the open door in China, was further strengthened by the agreement of the United States with Japan (for which see *UNITED STATES, History*). Other leading events in Japan's foreign relations during 1908 were the controversies with China over the capture of the Japanese trading vessel *Tatsu Maru*, the consequent boycott of Japanese goods by Chinese merchants, and the proposed extension of the Chinese railway from Hsinmintun northwards to Fakumen; and the negotiations with the United States and Canada in regard to the regulation and restriction of Japanese emigration to these countries. The first three of these questions are treated under the history of CHINA, and the last two, respectively, under the history of the UNITED STATES and CANADA. The reception accorded by the Japanese government and people to the American fleet on its cruise around the world is also described under the history of the UNITED STATES. We shall therefore confine ourselves here to an account of the leading events in Japanese internal politics during 1908, excepting, however the important statement concerning the Japanese government's policy in respect of emigration, made to the Diet on Jan. 28 by Count Hayashi, then Minister of Foreign Affairs.

BARON HAYASHI ON EMIGRATION. The Minister of Foreign Affairs began with the explanation that the danger had long been recognized of allowing Japanese laborers to flock in unrestricted numbers to the American Continent in the face of the attitude of the labor unions. The emigration law of 1896, which gave the government full power to regulate labor emigration in the interests of the international relations of the Empire, was adopted in recognition of that danger. The government had accordingly issued regulations, but these had lately proven inadequate, as the emigrants, in violation of their passports giving them admission to Hawaii, made these islands a stepping stone for passing to the United States. The lat-

ter adopted in March, 1907, legislation against the admission of Japanese emigrants coming *via* Hawaii, and the stream of emigrants was thereupon diverted to Canada. The Japanese consuls in Canada made numerous appeals to their government to restrict the inflow, which would lead to complications with Canada, as well as to great suffering among the immigrants themselves. After the Vancouver riot, with which the Canadian government dealt in a spirit most friendly to Japan, the former proposed to the Japanese government to negotiate a treaty for limiting labor emigration to her shores. The Japanese government replied that it could not possibly negotiate a treaty differentiating injuriously against its own nationals. Nevertheless Canada sent Mr. Lemieux to try to negotiate such a convention. This was declined, but the Canadian envoy received assurances from the Japanese government that it would continue to exercise all functions delegated to it by law in this matter. It was thereupon agreed that no restriction whatever should be imposed on the following classes of emigrants, namely: travellers, merchants, and students; Japanese laborers who had their wives and families in Canada; laborers who had returned to Japan with the intention of going back to Canada; contract laborers, that is to say, men having fixed employment; Japanese subjects discharging the duties of domestic servants and accompanying their employers; and lastly, agricultural laborers. Obviously the only emigrants not included in the above categories were those who drifted into Canada without any resources of their own, on the chance of finding employment. The Japanese government had been frequently urged by its own consuls to check the emigration of such men. As for the prohibition just imposed on the emigration of laborers to Hawaii, this was due to the fact that the number of Japanese laborers on those islands had come to be in excess of the local demand since their exodus to the United States and Canada had been checked. The Japanese in Hawaii had themselves petitioned their government to impose this prohibition.

FINANCIAL DIFFICULTIES. The Russo-Japanese War had left to Japan a legacy of heavy taxes, which had to be continued in order to maintain the army and navy on the new and much expanded basis. These taxes were not felt to be oppressive during the prosperity following immediately after the war. But with the setting in of the commercial depression towards the end of 1907, the commercial classes began to raise their voices against the ever-increasing unproductive expenditures and the consequent proposals for new taxation. The presentation of the budget synopsis for the current year, as well as the following one, in the Lower House of the Diet on Jan. 16, 1908, precipitated a most violent opposition in the country, in the Diet, and even in the cabinet itself. According to the budget, the available revenue for the two years was expected to fall below the proposed expenditures by 40,000,000 yen, and the deficit was to be made good from new taxation. The dissensions in the cabinet resulted in the resignation of the Ministers of Finance and Communications. Marquis Saionji tendered his resignation to the emperor, but it was refused. Meetings of protest were held in Tokio by delegates from the chambers of commerce throughout the country, in which lack of confidence was ex-

pressed in the Ministry, the Diet, and all existing political parties, and the business elements were urged to set up their own candidates in the approaching general election, since not otherwise could their views obtain proper representation. The last meeting of the United Chambers of Commerce, held in Tokio on Feb. 14, adopted a very strong resolution, unreservedly condemning the government, not only for having refused to abolish the salt monopoly and the taxes on textile manufactures and railway journeys, but also for having imposed further burdens on the people. The meeting declared itself against excessive armaments and unproductive expenditures, and called on the Chambers of Commerce throughout the Empire to unite their strength in order to oust from the Lower House of the Diet all politicians who had voted for the government's programme, and to replace them by men who would advocate sound, economic principles.

Besides their opposition to the above-mentioned three taxes, strong objections were also raised to the government's proposal for a progressive income tax, according to which the wealth of individuals would be taxed three or four times as much as that of corporations. This arrangement, it was said, would leave an opening for the escape of very rich men and would press most heavily on the middle classes and the landed interests. The demand of the commercial classes for greater economy in unproductive expenditures also found expression in the early part of May in a representation made in the House of Representatives and signed by no less than 342 members, out of a total membership of 379, thus representing practically every shade of political opinion, in which the government was urged to remove the State railways from the general budget and place them under a separate account, so that the profits derived from them might be devoted in their entirety to the development of the means of communication which the country stood so much in need of.

GENERAL ELECTION. In preparation for the general election to the House of Representatives, to be held on May 15, each of the three principal political parties issued in the early part of April a manifesto to the electors. The Progressists attacked the government on the ground that an equilibrium was not maintained between the resources of the nation and its unproductive expenditures, and laid on it the blame for the lack of confidence manifested by foreign nations in Japan's policy as regards the open door in Manchuria and Korea. The Seiyu-kai, the most numerous party in the House of Representatives, from among whom the cabinet of Marquis Saionji was composed, retorted by charging the Progressists with lack of fixed principles, in view of the fact that in the 23rd session of the Diet they had advocated a positive policy and had endorsed large expenditures, whereas in the 24th session they assumed a negative demeanor and opposed even small expenditures. Their sole object, said the Seiyu-kai, was the overthrow of the Saionji cabinet. The manifesto of the Daido Club, the third party in the House of Representatives and generally representing the views of the House of Peers, was chiefly apologetic in tone, denying the often heard accusation that it was a party without fixed principles and was acting merely in obedience to opportunist motives. About the

middle of April, the chief of the police bureau in the Home Department issued strict instructions to the police to check all forms of corruption and bribery in the coming general election. A private bill had been introduced in the last session of the Diet, limiting the legitimate expenses of a candidate to 2000 yen in a rural constituency and 1000 yen in an urban one. The government opposed the bill, on the ground that the principle of expenditure in elections ought not to be recognized by law. Nevertheless, the introduction of such a bill showed that the members were cognizant of the existence of corrupt practices, and the chief of the police bureau was particularly severe on the "election brokers," who make a business of collecting promises to vote and selling them *en bloc* to candidates.

The results of the election were as follows: The Seiyu-kai elected 189 members, a gain of 8 over their strength in the last Diet. The Progressists elected 77, a loss of 12. The Daido Club elected 32, a loss of 96. The Yuko-kai elected 27, a loss of 10. The unattached, or Independents, numbered 53, against 14 in the last diet, a gain of 39. The two most prominent features of the result were, first, that for the first time since the establishment of the Diet, one party—the Seiyu-kai—elected an absolute majority of the members; and, secondly, the great increase in the number of members unattached to any of the existing political parties. On closer scrutiny, moreover, it was found that all existing parties had lost seats in the urban districts, their total loss of 20 members in these districts corresponding to a gain of 20 in the ranks of the Independents, while in the rural districts the Seiyu-kai gained 13 members, all the other parties lost—the Daido Club as many as 19—and the Independents gained 19. The uniform loss of the old parties in the urban constituencies and the corresponding gain of the Independents thus showed that the agitation of the Chambers of Commerce against increased unproductive expenditures and taxation had borne fruit. Another notable feature of the result was that only 159 old members were reelected, while 181 were wholly new men, and 29 had been members of earlier Diets. This feature also appears to indicate that the policy of the last Diet was generally unpopular.

CHANGE OF CABINETS. The overwhelming triumph of the Seiyu-kai in the general election, the fact that for the first time a Japanese political party controlled a majority of the Lower House of the Diet, inspired the friends of constitutional progress in Japan with new hopes. The Constitution gives the Emperor the authority to select his Cabinet, who are responsible only to him, and cabinets had been hitherto selected without reference to the composition of the elective branch of the Diet. This may be said to have been the unavoidable result of the fact that no party controlled a majority of the delegates. But now, it was thought, a change might be inaugurated, giving the House of Representatives greater control over legislation. The *Yomiuri Shimbun*, a newspaper regarded as a Seiyu-kai organ, gave expression to this view. Hitherto, it said, the right of "approval" to legislation vested in the House of Representatives had been practically a dead letter, the decisions of the House having been always swayed by the "elder statesmen." But the time had now come when a political party was strong enough to

assert itself against these external influences, and the nation was keenly watching to see whether the Seiyu-kai would be equal to their great opportunity. The leaders of the Seiyu-kai, at a general meeting of the party held in Tokio on June 15 at which Marquis Saionji, the Premier, was present, spoke to the same effect, though with greater reserve. The gist of the speeches was that now, for the first time in the history of Japanese politics, one party had secured a working majority in the Lower House, and the fact constituted unequivocal evidence of the confidence placed in the Seiyu-kai by the nation. Nevertheless, shortly after the results of the general election became known, rumors began to circulate of the instability of the Saionji Cabinet.

These rumors received their verification on July 4, when it was announced that the Marquis Saionji had placed his resignation in the hands of the Emperor and had recommended Marquis Katsura as his successor. The official explanation given to the surprised and chagrined Seiyu-kai members of the resignation of their leader was the poor state of his health. Of course, this explanation did not satisfy them, since the choice of their leader's successor—not a member of their own party, but affiliated with the Daido Club—clearly showed that the change was not due to personal reasons. But no other explanation could be elicited from their party leaders. The fact seems to have been that the "elder statesmen" and the opponents of constitutional party government were alarmed at the unprecedented electoral success of the Seiyu-kai and were resolved to avoid even the appearance of selecting a cabinet from among the majority party, thus preventing the establishment of a precedent. The disaffection of the commercial classes with the Saionji Cabinet was shrewdly utilized for the occasion, but that the change was dictated by the "elder statesmen," who feared that if the Seiyu-kai remained in power much longer they might become masters of the situation in the Upper House as well as in the Lower, was made manifest by the succession of events following upon the Marquis Saionji's resignation. In the first place the Emperor dispatched Mr. Hitaka to Seoul, the capital of Korea, to consult the Japanese Resident-General in Korea, Marquis Ito. From this mission Mr. Hitaka returned on July 11, and immediately presented his report to the Emperor. The latter thereupon dispatched Prince Iwakura to consult with Prince Yamagata and the Marquises Inouye and Matsukata. At half-past eleven on the morning of the following day Prince Iwakura returned to the Imperial palace, and shortly after noon on the same day Marquis Katsura was summoned and given the Imperial command to form a ministry. No sooner did Marquis Katsura receive the Imperial mandate than he proceeded to consult Prince Yamagata and Marquis Inouye, the Marquis Matsukata being then away from Tokio. On July 14 the names of the new Ministry were published, being identical with the list given above under *Government*, except that Viscount Terauchi temporarily took charge of the Foreign Office in the absence of Baron Komura from the country. Under the influence of their disappointment, some among the Seiyu-kai were at first for fighting the new cabinet. But more moderate counsels soon prevailed, and it was decided to judge every separate proposal on its merits.

FISCAL REFORM. An important official declaration of the financial policy of the new Cabinet was made by Marquis Katsura at a general meeting of the clearing-house bankers held in Tokio on Sept. 10. He said that he considered the adjustment of the finances of the country at this juncture of no less moment than was the financing of the war. Approaching the problem with this conviction, he had found an unexpectedly favorable state of affairs, inasmuch as actual revenue always exceeded estimates, and surpluses remained from appropriations for public works. Nevertheless, it was absolutely necessary to place everything on a firm footing, and the government had therefore elaborated a programme of which the main features were (1) that all expenditure should be brought within the margin of actual visible revenue, refraining totally from loans; (2) that there should not be included in the estimates any anticipated surpluses of yearly revenue; (3) that appropriations of at least 50,000,000 yen should be annually set aside for the redemption of the public debt; (4) that the railways should be placed in a special account, all their profits being devoted to extensions and repairs, and this money being supplemented when necessary by temporary accommodation from the Treasury deposit; (5) that the period for completing the post-bellum programme should be extended from six years to eleven, thereby effecting a total economy of 200,000,000 yen. He firmly believed that the Japanese people might now rest assured as to the stability of their country's finances, and might proceed with their work of material expansion with perfect confidence.

From this declaration it appears that the government has heeded all the essential demands of the commercial classes, and Baron Shibusawa, speaking as the representative of the assembled bankers, expressed entire approval of the government's programme. It has been calculated that the change in the financial status of the State railways would lead to their complete redemption at the end of 23 years, when they would yield an annual revenue of 80,000,000 yen.

POLITICAL PARTIES. Shortly after the election of 1908, the bulk of the newly elected unattached members of the Lower House united to form the Boshin Club. On July 25 resolutions were adopted declaring that the platform of the club should be the adjustment of the finances on a sound basis; the establishment of a system for redeeming the national debts; reform of taxation and development of productive enterprises, and the recasting of the foreign policy of the nation. The club form of organization was adopted in order to assure to the members freedom on all subjects not included in the platform.

It is the custom for members of the Lower House to declare to the chief secretary of the House their political status. The declaration made on Dec. 22, preliminary to the formal opening of the Diet on Dec. 25, showed 192 members of the Seiyu-kai, 67 Progressists, 44 Yushin-kai, 42 members of the Boshin Club, 30 of the Daido Club, and 4 unattached. It was reported that the Progressists were practically split into two factions, which found it hard to continue in one organization. The principal point of difference appeared to be that while one faction believed in continuing the old fight for party government, the other faction was eager to associate with the other minor parties for the support of the Katsura Cabinet. The Premier himself, it was

rumored, by no means looked forward with enthusiasm to such a combination since the Seiyukai would still retain an absolute majority.

In an article on the present status of political parties in Japan, which appeared in the Japanese review *Taiyo*, and the substance of which was reproduced in the *Japan Weekly Mail* of July 18, 1908, it was stated that the election just past had proved once more the stolid indifference of the nation to political questions, the backward state of constitutional government, and the worthlessness of the political parties. The latter are without coherent organization, without pecuniary resources, and without regular organs in the press. The politicians are ordinarily quite inactive, and it is only at election times that they are roused from their lethargy. Then they assume a suppliant attitude to the electors, and where cajolery fails to achieve its purpose, direct bribery is resorted to. It is an open secret that many of the electors regard their votes as articles of merchandise. The speeches of the politicians, moreover, contribute very little to the enlightenment of the electors on public questions.

OTHER EVENTS. A treaty of arbitration was concluded with the United States (q. v.). Early in May the cruiser *Matsushima* sank in consequence of an explosion on board. Over 200 lives were lost. The killing in Peking by a gendarme of ex-Captain Kawakita, a Chinaman who had served with distinction on the Japanese side in the late war, for resisting arrest on a charge of selling official documents to a foreign Power, caused a good deal of comment in the Japanese press. It appears that a number of junior officers in the Japanese army have recently been removed or retired in connection with more or less flagrant scandals. The Far Eastern Colonization Company was organized for the purpose of furthering Japanese colonization and settlement in Korea. The Yalu forestry agreement with China was signed in May. A convention with China in regard to the proposed Hsinmintun-Mukden and Kirin-Changchun railways was concluded on Nov. 12. The advance of the Japanese lines in northeast Formosa was proceeding in 1908 with relatively little bloodshed. The occupied region showed great productive capacity. The international exhibition originally intended to be held in 1912 has been postponed until 1917. Towards the end of 1908 a treaty of amity, commerce, and navigation was arranged with the Republic of Colombia. The Diet was formally opened on Dec. 25, and the New Year's recess began on the 27th, to last until Jan. 20, 1909. See also FORMOSA, KOREA, and MANCHURIA.

JAVA. The most important island of the Dutch East Indies (q. v.), covering an area of 48,503 square miles. With Madura and several smaller adjacent islands, administratively attached to it, it is officially known as Java and Madura, with an area of 50,775 square miles, and a population in 1905 of 30,098,008. The principal cities, with their populations in 1905, are: Batavia, the capital of the Dutch East Indies, 138,551; Surabaya, 150,198; Surakarta, 100,667. In 1905 there were 313 government schools for natives, with 71,256 pupils, and 409 private schools, with 40,882 pupils, besides schools for Europeans and foreign Orientals. Coal (chiefly lignite), limestone, marble, manganese, sulphur, salt, and saltpetre are found. Petroleum has of late attained some prominence. Rice is the most important agricultural product,

followed by maize, cotton, sugar-cane, tobacco, indigo, coffee, tea, cacao, etc. The greater part of the soil is government property. The lands cultivated by natives amounted in 1905 to 7,195,781 acres; Europeans owned 2,321,718 acres; Chinese, 331,117 acres; and other foreign Orientals, 30,289 acres. The "culture system," based on forced native labor, was abolished in 1882, except in regard to the cultivation of coffee. In 1907 the coffee production on government account by the "culture system" was 5,804,816 pounds against 22,215,464 pounds in 1906, and on private account, 15,492,576 pounds, against 35,958,808 pounds in 1906. To make up for the coffee crop shortage of 1907, a considerable quantity of inferior Brazilian coffee was imported for native consumption. The sugar production in 1907 amounted to 1,282,705 tons. The export of tea in 1907 was 29,286,402 pounds. The foreign commerce of Java is included in that of the Dutch East Indies. In 1906 there were 1321 miles of railways. For administrative purposes, Java and Madura are divided into Residencies, each under a Resident, who controls the natives through native officials. The residents are subordinate to the Governor-General of the Dutch East Indies.

JESUP, MORRIS KETCHUM. An American banker and philanthropist, distinguished especially for his generous gifts for the advancement of science, died at his home in New York City, on Jan. 22, 1908. He was born in Westport, Conn., on June 21, 1830, went to New York City with his widowed mother in 1842, and was a clerk for a manufacturing firm until 1852, when he became a member of the banking firm of Clark & Jesup. At the age of 26, he organized the banking house of M. K. Jesup & Co., which subsequently became the firm of Cuyler, Morgan & Co., Mr. Jesup being a special partner. The Canadian Pacific Railroad, and other important commercial enterprises, were financed in part, or entirely, by these concerns, and Mr. Jesup himself became very wealthy through the almost uniform success of his business undertakings. He was president of the New York Chamber of Commerce from 1899 to 1907, during which period he was active in all of the affairs of that body, gave freely to the charitable projects, and was the largest individual subscriber to the fund of \$1,500,000 for the new Chamber of Commerce building. He gave generously to, and was deeply in sympathy with, many of the charitable, religious and educational institutions of New York City; he was one of the founders of the Young Men's Christian Association of the city, and its president in 1872; was president in 1881-1903 of the New York City Mission and Tract Society, for which he built the De Witt Memorial church, and was a trustee of the Union Theological Seminary, to which he gave Jesup Hall. He was also a founder and a liberal patron of the Syrian Protestant College, at Beirut, Turkey. He gave the Morris K. Jesup Fund to Princeton University for library uses; Jesup Hall to Williams College; the Forty-fourth Street Lodging House for Boys, for the New York Children's Aid Society, and in 1905 endowed a chair in Union Theological Seminary "to spread the teachings of the Savior."

Even more notable was his encouragement of scientific research. These benefactions were incident to his presidency of the American Museum of Natural History, in New York City, an office

he held from 1881 to 1907. As president of the Museum's East Asiatic committee he was a patron of Dr. Berthold Laufer's work in China. In 1897 he established the Jesup North Pacific Exploration Fund, which, in 1900, made possible the exploration of MM. Bogoras and Jochelson of the Amur region, in Siberia, while in 1903, from the same fund, an expedition was outfitted which explored in British Columbia and afterward in Washington. To the various Peary Arctic expeditions he also gave about \$200,000.

Mr. Jesup gave to the American Museum \$100,000, which was used in preparing a collection of woods of the United States. His steady purpose was to make the Museum not only a means of popularizing science, but of carrying on intelligent research and exploration in unknown fields. By his will he left \$1,000,000 for the continuance of investigations along those lines.

JEWS. The statistics of the number of Jews in the world rests largely upon estimates. Only in Russia, Austria-Hungary, Germany, and a few other countries, are official figures obtainable. According to the estimates given in the *American Jewish Year Book* for 1908-9, which are compiled from various sources, the total Jewish population in 1908 was 11,577,473. Of these, the largest number, 5,215,805, was in Russia. In Austria-Hungary there were 2,076,378; in the United States, 1,777,185; in Germany, 586,948; in Turkey, 463,686.

By comparison with 1907, the year 1908 was a quiet one in Jewish annals. Something of a reaction was discernible, especially in Russia, where liberal ideas appeared to lose ground, and the revolution, though it still existed, had been driven under cover. Some discussion was carried on early in the year as to whether Jews should or should not be recruited for the Russian army. It was shown by official figures that the charge that Jews would not serve, was groundless. The total number of Jews in the Russian army was given at 54,276. There was considerable discussion in the Duma over questions relating to the Jews. The constitutional Democrats took the stand that such questions should not be debated. Some of the Russian leaders considered the advisability of denationalizing the Jews after the manner of Rumania.

An incident of the year was the resignation of certain professors of the Polytechnic Institute at Kiev on account of the order of M. Stolypin, expelling the Jews from the institute. The feature of the year in Russia was the pardons distributed after the trial of Pogromists at Kiev and Bialystok. After the convictions at Kiev, the court petitioned for amnesty. The League of Genuine Russians, as usual, placarded many anti-Jewish proclamations, and there were pogroms during the year, especially at Odessa. Odessa was the chief seat of the prosecutions against the Jews during the year. In January there were serious riots. The Prefect was unable to keep order, and a Jewish deputation went to St. Petersburg to complain of his incompetence. An agreement was reported to have taken place among the four Jewish parties, Zionists, Jewish People's Group, Jewish People's Party, and Jewish Democratic Group. A conference, which was regarded as important, took place between the Zionists and the Socialist Party.

In Austria, four Jewish members of the Austrian Reichsrath formed a Jewish club, to act

in concert on all Jewish questions. A convention of the General Jewish Union was held in Vienna on April 27 and succeeding days. About 150 delegates were present, representing 90 congresses, and a national organization was effected. The 35th general meeting of the Israelitische Allianz of Vienna showed that 176,500 kronen had been collected for Rumanian relief, of which nearly one-third came from America.

In France, Rabbi Alfred Lévi was chosen to succeed the late Zadoc Khan as Grand Rabbin in France, and was inducted into office on April 6. By a bequest of Baroness Adolphe de Rothschild, 10,000,000 francs was made available for Jewish charity. Out of this sum, the Board of Guardians of Paris will build a Jewish hospital.

In Germany, the work of the Hilfsverein der Deutschen Juden was carried on effectively during the year. Its membership increased to 18,000, located in over five hundred German cities and towns, and its income from duties amounted to 130,000 marks. It supports thirty-five schools and 4000 pupils.

In Rumania the government is engaged in a deliberate and consistent campaign against Jews. Expulsion from villages, which began in March, 1907, continued throughout 1908, and industrial shops, even when owned by Jews, were not allowed to have more than one-third of their employees of that persuasion. A new law was passed forbidding "aliens" to engage in the wine business, and thousands of Jews were ruined. It was estimated that 10,000 Jews were affected by the explosion decrees.

In the United States the immigration of Jews fell off considerably during the year as the result of industrial conditions. From Sept. 1, 1907, to June 1, 1908, 54,539 Jews landed at the port of New York, as against 77,371 in the corresponding period of 1906-7. Of these 39,164 came from Russia. The various charitable and philanthropic organizations carried on their work during the year. The United Hebrew Charities was obliged to close its doors in Dec., 1907, for a short period on account of lack of funds.

ZIONISM. Several new undertakings were begun by the Palestinian Mission. These were the Olive Tree Society, the Palestine Land Development Company, and the Palestine Bureau. President Wolffsohn made a number of trips in behalf of the movement and was received in audience by the Sultan. He declared that the Sultan was in sympathy with the Zionist movement. He also visited Russia in order to remove the objections of the Russian government to the Zionist movement. The usual annual Conference of the Federation of American Zionists was held at Atlantic City. The chief result of the conference was the determination to continue a more thorough and better organized campaign of propaganda.

JOHNS HOPKINS UNIVERSITY. An institution of higher learning at Baltimore, Md., founded in 1876. In 1907-8 the attendance was 683, and in the autumn of 1908, 700. In 1907 the trustees decided to admit women to the graduate courses, and five women attended during 1907-8. In the autumn of 1908 the number was about 20. About thirty women are enrolled in the medical department, which was opened to them at its beginning in 1893. By the liberality of Mr. Henry Phipps, of New York, a psychiatric clinic is to be established at the Johns Hopkins Hospital, and its director, Dr. Adolf

Meyer, will be professor of psychiatry in the university at its beginning in Oct., 1909. The new site of the university at Homewood has been surveyed, and plans for the new buildings are in preparation, but these will not be begun until at least \$1,000,000 is available for that purpose. The endowment of the university is \$4,470,000. Its present academic buildings, equipment and grounds are valued at more than \$2,000,000. Recent noteworthy appointments in the faculty include besides Dr. Adolf Meyer, mentioned above, Dr. Edward F. Buchner as professor of philosophy and education, and Dr. John B. Watson as professor of experimental and comparative psychology. A botanical laboratory and a greenhouse have been erected and are now occupied for advanced research. An athletic field has been completed and is now in use, and a concrete grandstand, seating 2000, was erected. The president is Dr. Ira Remsen.

JOHNSON, JOHN ALBERT. Governor of Minnesota. He was born at Saint Peter, Minn., on July 28, 1861. He was obliged to leave school at an early age in order to assist his mother in the support of the family. In 1886 he became editor of the Saint Peter *Herald*, and shortly afterward began to take an active part in politics. At first a Republican, he joined the Democratic party because of his belief in tariff reform, and in 1898 was elected State Senator. He was offered the Democratic nomination for Governor in 1902, but declined. In 1904, however, he accepted the nomination and was elected by about 7000 plurality, although the Republican Presidential ticket received about 161,000 plurality. He was reelected in 1906 by about 72,000 plurality and again in 1908 by about 30,000. As Governor, Mr. Johnson has successfully advocated a maximum schedule for freight rates, a two-cent passenger fare law, the abolition of railway passes and franks, the abolition of private banks and many other measures similar in import. All this he has accomplished despite the fact that the State Legislature has been controlled by those of the opposite political faith. In 1908 the opponents of Mr. Bryan in the Democratic party endeavored to make Mr. Johnson the presidential nominee, but Mr. Bryan's hold was too strong, Mr. Johnson receiving 46 votes in the National Convention. The University of Pennsylvania, in 1907, conferred upon Mr. Johnson the degree of LL.D. See **PRESIDENTIAL CAMPAIGN AND MINNESOTA.**

JOHNSON, TOM LOFTIN. An American politician, was born in Georgetown, Kentucky, on July 18, 1854. He went to work in a rolling mill while a boy, and afterwards entered the office of a street railway. When eighteen years old he invented a new rail and started its manufacture. He also acquired interests in street railroads in Indianapolis and Cleveland and amassed a fortune. He was a Democratic member of Congress from Cleveland from 1891 to 1895 and thereafter spent some years in developing the Nassau Electric Railway system in Brooklyn, which he afterwards sold to the Brooklyn Rapid Transit Company. He has always been a radical Democrat and became a believer in the single tax theory of Henry George, and in municipal ownership of public utilities. In 1901 he was elected Mayor of Cleveland on the issue of three-cent fares, and was reelected in 1903, 1905 and 1907. During his tenure of office he has carried on a strenuous

fight with the city's transit corporation, which resulted after his last election in an agreement by which the street railways were to be operated by a holding company controlled by the city and three-cent fares were provided for. The company immediately began to show a deficit and a plan of reorganization advocated by him was defeated at a referendum election held in Oct., 1908. He has also taken a prominent part in State politics and was the candidate for Governor on the Democratic ticket in 1903. He was the Ohio member of the Democratic National Committee from 1904 to 1908, and was defeated for reelection in the latter year. See **OHIO.**

JOHORE. A British protectorate at the southern extremity of the Malay Peninsula. Area, 6950 square miles; population, 200,000; chiefly Malays and Chinese. The chief town is Johore Bahru, 15 miles north of Singapore. Rubber plantations are extending. The number of estate laborers in 1907 was 1952. Pepper, sago, tea, coffee, gambier, and gutta percha are exported. The administration is by the native sultan and subordinate chiefs. The foreign relations are controlled by Great Britain.

JOLY DE LOTBINIERE, SIR HENRY GUSTAVE. A Canadian statesman, died on Nov. 16, 1908. He was born in 1829, was admitted to the bar in 1855, and became Queen's Counsel in 1878. He was a member of the Canadian Assembly in 1861, and upon the organization of the Dominion government in 1867 became a member of the House of Commons, and also served for many years as a member of the Quebec Assembly. He was Premier of Quebec in 1878-79, Minister of Inland Revenue of the Dominion in the Liberal Cabinet from 1896 to 1900 and in 1900-05 was Lieutenant-Governor of British Columbia.

JONES, JAMES KIMBROUGH. An American politician and soldier, and ex-United States Senator from Arkansas, died on June 1, 1908. He was born in Marshall County, Miss., on Sept. 29, 1839, at the outbreak of the Civil War enlisted in the Confederate Army, and served until the war closed. He then became a planter, studied law, and in 1873 was elected State Senator, subsequently becoming president of that body. In 1880 he was elected to Congress, where he served until 1885, when he was elected to the United States Senate. As a United States Senator he soon became one of the most prominent of the Democratic leaders, and for years held the post of chairman of the Democratic caucus. He was an ardent tariff reformer and a warm supporter of William Jennings Bryan, although in the Democratic National Convention he had strongly opposed Bryan's first nomination. In the campaign of 1896 and 1900 he served as chairman of the Democratic National Committee. At the close of his senatorial term in 1903 he retired from active participation in politics and took up the practice of law in Washington.

JOVIAN ASTEROIDS. See **ASTRONOMY.**

JUPITER. See **ASTRONOMY.**

JUVENILE COURTS. The tendency shown by the recent legislation with reference to the care of wayward children, is to place their disposal or punishment in the hands of special courts where they must be tried with due privacy. It is believed that

less disgrace and demoralization will thus result from the child's appearance in court, and that the child will receive more sympathetic and reformatory treatment. Moreover, the recent legislation provides for the parole of offenders on their own responsibility, or their release under suspended sentence, but in the custody of probation officers. Georgia, Louisiana, Ohio, and Rhode Island passed such laws in 1908. The Georgia law provides that upon the petition of two successive grand juries, a juvenile court may be established in any county; that the judges to sit in such courts shall be those of the Superior Court, except that in their absence judges of city courts may sit. The law provides for probation officers and, as is usual with the newer legislation, gives the court very wide discretion in providing for the education, employment, or punishment of wayward children. The Louisiana law provides for the establishment of a juvenile court in the parish of New Orleans. These new laws in Georgia and Louisiana are indicative of the new spirit in Southern States, in others of which a strongly favorable sentiment has developed. In Rhode Island, children's cases are taken out of probate courts and placed exclusively in the jurisdiction of district courts. The law grants the custody of any neglected child to the Society for the Prevention of Cruelty to Children, which may place it in a private family, having regard for the religious belief of the parents. Any adult contributing to juvenile delinquency is made punishable by a fine of \$500, or imprisonment for one year, or both. The Ohio law was a comprehensive statute unifying much recent legislation on the care of children.

A study made in April of the results achieved by the juvenile court in Chicago, where it has been longest established, showed that there have been fewer and fewer cases brought before it. For the calendar year 1907, the cases numbered 3266, or 528 less than in 1906, while in 1908 a similar falling off was observable. This was believed to be due largely to the probation system, though partially due also to new playgrounds (q. v.) and recreation centres and the activities of the Juvenile Protective League. (See JUVENILE DELINQUENTS.) On the other hand, some interpreters held that the decrease in the number of cases indicated that probation officers and others responsible for correcting wayward children had become more lenient and more inclined to excuse offences as they became personally acquainted with delinquents.

Speaking of juvenile courts at the National Conference of Charities, at Richmond, in May, Judge Mack, of Chicago, stated that the most vital part of the new court system is the work to be done by the probation officer. He held that this officer should be an educator rather than a guard and should be able from intimate acquaintance with the child and its home life to direct its development along lines preparing for good citizenship. Moreover, probation work, he said, should be more closely correlated with the efforts of playground associations and juvenile protective leagues. As an addition to the present equipment of juvenile courts, Judge Mack advocated that there should be a medical department to examine each child for adenoids, poor sight, and nervous diseases, these being common causes of truancy and waywardness.

CANADA. A new law, approved June 20, introduced some of the best elements of the juve-

nile court system into the Canadian judicial administration. The juvenile courts are to have exclusive jurisdiction in cases of delinquency of children and youth, except when a child over fourteen is charged with an indictable offence. The court proceedings must be held privately; children may not be confined in jails, but detention houses must be provided. The law provides for the use of the suspended sentence and the appointment of probation officers. Parents are made punishable by fine for contributing to juvenile delinquency. When children are placed under the guardianship of others than their parents, regard must be had of the religious faith of the latter. The law may be made operative in any province, city or town by the publication of the appropriate proclamation.

EUROPE. The favor found for the institution of special courts for the care of neglected and delinquent children in this country, has resulted in a practically world-wide movement for their introduction under the lead of the International Juvenile Court Society. In England, a new law of Parliament requires that in every city and town of moderate size, one or more rooms shall be set aside for the trial of juvenile offenders. Only adults peculiarly interested are to be allowed in the children's court during sessions. Probation officers and the parole system are authorized for every such court. No child may henceforth be sent to prison, and youth under sixteen may be imprisoned only for special offences. Remand or detention houses are to be used for those wayward youth who need closer supervision than parole permits. These homes are expected to enable such youth to break entirely their connections with demoralizing associates. In France, as a result of the visit of a representative of the American Society for the Prevention of Cruelty to Children, and the visit to this country of two French investigators, the juvenile court system is being gradually approached. In Italy, as the result of the efforts of those interested in the American system, a circular of the minister of justice, issued May 10, 1908, provides that juvenile cases shall be heard separately and always by the same judge; that they shall be treated in a psychological rather than a punitive spirit, and that children not concerned shall not be allowed in court rooms. The Italian law makes possible the parole of youthful first offenders, but does not provide any probation system. To remedy this defect, a society of volunteer probation officers and supporters was formed in Rome in 1906. It proved successful, and in 1908 was copied in Milan, Florence, and Turin. These societies number more than one hundred members each. They have enrolled among them leading citizens of all ranks, and have thus acquired prestige with the courts as well as means for the support of capable probation officers. Moreover, in 1908 they were subsidized by the government. See JUVENILE DELINQUENTS and PLAYGROUNDS.

JUVENILE DELINQUENTS. As in the years immediately preceding, so also in 1908, considerable attention was given to the subject of the proper treatment of youthful delinquents. This movement for the more intelligent care of those boys and girls who at tender ages come within the grasp of the law, is only a part of the growing regard for child life finding expression in greater protection of youthful workers (see CHILD LABOR) and the provision

by cities of recreation centres and playgrounds (q. v.). So closely is juvenile crime connected with nervous or physical disorders and with neglect on the part of parents or guardians, that laws dealing with youthful offenders customarily include neglected and dependent children as well. At the fifth annual Conference on Education of Backward, Truant, and Delinquent Children, at Hampton and Richmond, Va., in May, at which about 100 delegates were present, especial attention was given to the advantages of private over public institutions for the care of dependent and delinquent children. Dr. D. C. Potter, examiner of accounts for the city of New York, stated that that city employed private institutions for the following reasons: (1) the system of public care has been tried and found thoroughly bad; (2) the present system secures freedom from partisan politics, enlists the co-operation of citizens and secures for the child the influences of its parents' religion; and (3) the system of hiring private institutions is more economical than any system of direct public care. This last point was substantiated by the statement, that while city paid about \$135 each for the annual support of children in private institutions, with \$15 additional for those attending school, it has provided for the public care of truants in a public institution at a cost of \$275 each year. While other speakers made some defense of the system of public care, the system most generally supported was the Massachusetts system of placing children in private homes. This same system is followed by the Society of St. Vincent de Paul, and was warmly approved at the seventy-fifth anniversary at Richmond, May 3-6. At Richmond in early May was held also the thirty-fifth National Conference of Charities and Corrections, at which considerable attention was given in the children's sessions to the subject of juvenile delinquency, and especially to preventive measures. One session, devoted to children in families not their own, brought out the great advantages to morals and health of the training given such children when placed in suitable homes. The great responsibility assumed in choosing a home, the danger, if not disaster, resulting from an ill-considered choice, and the necessity for keeping in personal touch with the child and its new home by the agency placing it, were emphasized.

A report on the work of the Juvenile Protective League, formed at Chicago in 1907, showed that in one year the League, which is supported by voluntary contributions, had investigated all the five-cent theatres in the city, resulting in the elimination of demoralizing pictures and scenes; dance halls had been regulated, successful prosecutions of dealers in cocaine and tobacco for selling to children, had been made, and libraries had been started in rooms where messenger boys assemble. Writing on the subject of youthful crime, Professor Hugo Münsterberg, of Harvard University, stated (*McClure's*, April) that the United States was spending several hundred million dollars more per year in fighting crime by repressive agents than by preventive measures, such as education, charity, and religion. Analyzing the inmates of a school for criminal boys he found that out of 200 boys present, 127 were mentally defective, being either weak-minded or showing a tendency toward hysteria and epilepsy. Study-

ing the records of their parents, he found that in 85 cases there was drunkenness on the part of one or both parents, in 24 cases insanity, in 26 cases epilepsy, and in 26 additional cases some nervous disease. This analysis fully bore out Professor Münsterberg's contention that society fights crime from the wrong direction, that is, after rather than before the conditions making it inevitable have wrought their effects. Judge Ben B. Lindsey, of Denver, who has had years of experience in juvenile cases, writing in *Charities and the Commons*, as to the relative responsibility of the school and the home for youthful waywardness, stated emphatically that the latter is "infinitely" more responsible than the former.

During 1908, Georgia, Louisiana, Michigan, Ohio, and Rhode Island enacted laws relating to the care of neglected, dependent, and delinquent children. The Georgia law provided only for juvenile courts, while those of the other States were comprehensive laws relating to these children under sixteen years of age (seventeen in Louisiana), authorizing certain courts to have exclusive jurisdiction over them (see JUVENILE COURTS), and providing for the support of dependent children, the disposition or punishment of wayward or criminal children, and the punishment of adults who contribute in any way to juvenile delinquency. See also PLAYGROUNDS.

In England there has been a decrease in juvenile delinquency according to the official report on the prison population. The number of prisoners of ages twelve to sixteen fell from 1630 in 1897 to 556 in 1908. The report points out an indisputable connection between lack of employment after leaving school and the drifting of youth into criminal careers. It is also pointed out that the stature of "juvenile-adult" offenders, those of ages sixteen to twenty, is at each age less than the average stature of the artisan population, and still more below that of the rural population or of the general population. See JUVENILE COURTS for new English law.

KAMERUN. A German protectorate in West Africa. Area, 190,600 square miles; population, 3,500,000. In 1907 there were 1010 whites (860 Germans). Buëa is the capital. Duala has 22,000 inhabitants. Government schools at Duala, Victoria and Garna have some 500 pupils. Mission schools have 16,000 pupils. European plantations cover nearly 20,000 acres, cacao being the most important product, followed by rubber, kola, and coffee. In 1906 there were produced 1098 pounds of cotton. In 1907 the imports were valued at 17,296,547 marks, against 13,305,514 marks in 1906, mostly cottons, beverages, timber, salt and iron manufactures; the exports amounted to 15,867,021 marks, against 9,945,903 in 1906, mostly palm-kernels, palm-oil, rubber, cacao and ivory. There is a railway of 22 miles from Victoria to Lisoko. At the end of 1907 about 100 miles of railway were in construction. The length of telegraph in 1908 was about 500 miles. The budget for 1908-9 balanced at 10,610,239 marks, of which 2,780,139 was an Imperial subvention. The military force in 1908 numbered 1454 (1300 natives). The Governor in 1908 was Dr. Th. Seitz. A convention with France in April, 1908, delimited Kamerun from the French Congo.

The Colonial Secretary, Herr Dernburg, announced on March 4, 1908, that owing to the

reckless exploitation of the rubber forests, they were being rapidly destroyed. The trade was attended with serious abuses. Large numbers of the natives were drawn away from their usual pursuits and the caravans levied contributions upon the inhabitants. The effects were, he said, injurious to the colony, and for this reason, and especially to prevent the exhaustion of the rubber forests, the government had restricted the trade and closed certain districts to the traders. The government's aim was to withdraw the natives from the caravan traffic and send them back to their usual agricultural occupations.

KANSAS. One of the North Central Division of the United States. Its total area is 82,158 square miles. The population in 1908, according to Federal estimate, was 1,677,168.

MINERAL RESOURCES. The great oil field, which includes the Kansas fields, is known as the Kansas-Oklahoma field. This field ranks second in the output of crude petroleum among the States. In 1906 interest in the Kansas fields was subordinated to the Oklahoma fields with the result that only one-tenth as many wells were drilled in Kansas in that year as in the new State. This condition continued in 1907. The production of the Kansas fields in 1907 was 2,409,521 barrels, valued at \$965,134. A portion of this was taken from storage, but as it entered into consumption in 1907, it is considered as marketed production for that year. Counties producing the largest quantity of oil are Chautauqua, Montgomery and Neosho. The total output of the Kansas-Oklahoma field was more than double that of 1906, the respective figures being 46,846,267 barrels and 22,836,553 barrels. The coal industry, which is one of the chief mineral industries of Kansas, had an exceptionally prosperous year in 1907. The total production was 7,322,449 short tons of a spot value of \$11,159,698. The production of 1907 exceeded that of 1906 by 1,297,674 short tons or 21.53 per cent. in quantity and by \$2,180,145 or 24.28 per cent. in value. The coal output of the State in 1907 was more than double that of 1898 and the increase in 1907 over 1906 was larger than the total production of the State in 1885. Coal mining suffered materially from lack of labor supply. In 1907 the total number of men employed was 12,439, while in 1906 there were 14,355 men employed in the mines. There were 32 men killed in the coal mines of Kansas during 1907. In the production of 1907 only six machines were used in mining. The original coal supply of the State is estimated by the United States Geological Survey to have been 7,022,000,000 short tons, from which there had been mined to the beginning of 1908 91,176,204 tons. The smelting of zinc is one of the most important industries of the State, owing to the abundance of natural gas and the central location. In 1907 the output was 13,850 short tons, as compared with 3902 short tons in 1906. Kansas ranks fourteenth among the States in the value of its clay products. These products were produced in 1907 to the value of \$2,370,058 as compared with \$2,432,371 in 1906. The Portland cement industry has developed in the State to great proportions. Its rank in 1907 was fifth. There were produced in that year 3,353,925 barrels of Portland cement valued at \$4,240,358 as compared with 3,020,862 barrels in 1906, valued at \$3,908,708. This industry has developed entire-

ly since 1900, when no production was recorded. In the production of salt Kansas ranks fourth among the States, being surpassed only by New York, Michigan and Ohio. The production in 1907 was 2,667,459 barrels, valued at \$962,334 as compared with 2,198,837 barrels in 1906, valued at \$621,082. Mineral waters were produced in the State in 1907 to the value of \$61,454. The production in gallons was 362,252, as compared with 305,957 in 1906. Among other mineral products of the State are coal products, sand-lime brick, zinc lead and zinc white. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$28,577,044, as compared with a value in 1906 of \$22,584,076. Estimates indicate that the production of coal in the State in 1908 was 20 per cent. less than in 1907.

AGRICULTURE. The statistics prepared by the Kansas Board of Agriculture indicate that the agricultural product of Kansas for 1908 was the greatest in the history of the State. The total value of the farm products and live stock was \$475,244,831 or \$11,596,224 in excess of 1907, which was the best prior year. A heavy decrease is reported in the value of products of live stock, although in the aggregate the live stock on hand was worth practically the same as in the year preceding. The quantity of agricultural products and the acreage is as follows: wheat, 76,808,922 bushels from 6,930,351 acres; corn, 150,640,516 bushels from 7,057,535 acres; oats, 16,707,979 bushels from 831,159 acres; rye, 361,476 bushels; barley, 2,657,122 bushels; potatoes, 6,419,685 bushels; broom corn, 11,595,740 pounds; sugar beets, 553,178 tons; butter, 42,205,266 pounds. The poultry and eggs sold were valued at \$9,306,651. The animals slaughtered or sold for slaughter were valued at \$67,755,158. The value of the horticultural and garden products was \$786,879. Although the area devoted to wheat was less than that of 1907 by 295,932 acres, the yield of 1908 was an excess of 2,653,227 bushels and is 3,748,000 bushels more than the average for the ten years ending in 1907, which is the most valuable wheat crop ever produced in the State. The average value per bushel was about 83 cents, the highest since 1881. The spring wheat area showed a decrease as that crop was practically a failure, especially in the northwestern counties, where it is grown with more or less persistency. Indications point to a smaller area sown to winter wheat in the fall of 1908 than in the fall of 1907. The value of the corn produced was \$2,642,461. Although ranking fifteenth in aggregate yield, it is first in value. While the area planted was only 248,523 acres greater than that of 1907, the value of the product was \$19,601,718 more. The average yield per acre was approximately the same as in 1907, but the price per bushel averaged more than 11 cents, or 26.6 per cent. higher. Corn is the most important soil product in the State. On an area of 831,159 acres, about 25 per cent. less than the area in 1907, 2,603,785 more bushels of oats were produced in 1908 than in the former year. Emmer (speltz), reported for the first time this year, is credited with 30,469 acres yielding 934,941 bushels, valued at \$437,606. While less in area than a year ago a larger crop of potatoes was harvested, and worth \$316,732 more than

the crop of 1907. The non-saccharine and sweet sorghums for forage both show increases in areas, and the combined value of their production is \$1,456,177 greater than in 1907. The yield of hay was abundant. The alfalfa field of 878,283 acres is an increase of over 18 per cent. over the area of 1907. The numbers and values of the live stock in 1908 were as follows: Horses, 928,956, valued at \$95,682,468; mules and asses, 144,967, valued at \$17,399,640; milch cows, 687,432, valued at \$21,310,392; other cattle, 1,953,435, valued at \$42,975,570; sheep, 136,191, valued at \$531,145; swine, 2,705,057, valued at \$19,611,663. The total value of the live stock in the State was \$197,510,878. The wool production in 1908 was valued at \$201,600.

MANUFACTURES. A comparison of the census of 1905 with that of 1900 showed an increase of 49.1 per cent. in the capital, 31.2 per cent. in the number of wage-earners, and 28.7 per cent. in the value of products, the figures for 1905 being, respectively, \$88,680,000, \$35,570, and \$198,244,990. The four leading industries, slaughtering and meat packing, flour and grist mill products, railway repairing, and smelting and refining zinc, showed values in 1905 of \$96,375,600, \$42,034,000, \$11,521,000 and \$10,999,400, respectively. These values were increases over those of 1900 of 24.5, 97.1, 69 and 90 per cent. respectively.

EDUCATION. The consolidation of rural schools, which was undertaken under legislation passed several years ago, more than doubled in the State in 1907-8. The school population (ages 5 to 21), according to the last biennial report of the State Superintendent, was in 1908, 507,630, of whom 392,009 were enrolled in public schools and 290,904 were in average attendance. Of those in average attendance, 205,186 were in rural districts, 103,039 in first and second class cities, and 2779 in county high schools. The average length of term was 141 days for rural schools and 180 days for city schools. The total number of teachers employed was 12,985, of whom 8,357 are females. This was exclusive of the 2339 teachers in the cities of the first and second class. There were thirty colored teachers. The average monthly salary of rural school teachers was \$48.32 for men and \$43.76 for women. The average length of school term was 6½ months. Grade teachers in cities received an average of \$54.38 per month, and high school teachers, \$73, the average length of term being 8 2-3 months. There were 22 county high schools, employing 109 teachers, giving four-year courses. The total revenue for school purposes was \$7,335,433, of which \$5,958,919 was received from district taxes and \$569,765 from State and county school funds. The number of counties in which high school education is made free to all has been greatly increased.

FINANCE. The Treasurer's report for the fiscal year ending June 30, 1908, showed that there was a balance July 1, 1907, of \$760,266.95. The total receipts for the fiscal year ended June 30, 1908, were \$5,195,952.13 and the expenditures, \$4,910,568.43, leaving a balance on July 1, 1908, of \$1,045,460.65. The amount of revenue for taxes received to June 30, 1908, was \$2,709,251.54. The tax levy for 1908 was \$2,208,322.66 on the assessed valuation of \$2,453,691,859. The tax rate for the State was nine-tenths of a mill. The property in the State, previous to 1908 was assessed at one-third to one-tenth of its actual value. In 1908 the property was assessed at its

actual value. The permanent school funds of the State were \$724,695.67.

CHARITIES. During the fiscal year 1908 the Board of Control, which has exclusive business management and supervision over the nine State charitable institutions in the State, spent about \$20,000 in equipping these institutions with adequate fire escapes and fire protection. By way of fire protection the Board has placed chemical fire extinguishers in each institution not already provided, and increased the general facilities for fighting fire in all of these places. A new \$65,000 administration building was erected at the State Hospital for Epileptics at Parsons, a new \$60,000 custodial building at the School for Feeble-minded Youths at Winfield, two new cottages for female patients and additions for about 170 more male patients at the Topeka State Hospital. There was erected at the Topeka State Hospital a pavilion for tuberculous female patients. Many other new and needed improvements were made at these various institutions, which places them upon a higher plane than they have heretofore been. The total salaries paid in the nine institutions for the fiscal year ended June 30, 1908, was \$255,841.63. The total expended for maintenance and repairs for the same period was \$147,156.19. The population, June 30, 1908, was as follows: Topeka State Hospital, 1100; Osawatimie State Hospital, 1298; Parsons State Hospital, 396; School for Feeble-minded Youth, 389; Soldiers' Orphans' Home, 170; Boys' Industrial School, 205; Girls' Industrial School, 195. The number of pupils in the School for the Deaf at the close of the school year was 236; in the School for the Blind 88.

POLITICS AND GOVERNMENT. A new primary election law went into effect in 1908, and the first primary election was held in the State on Aug. 4th. (See PRIMARIES DIRECT.) For an account of the results of this election see paragraph *Conventions and Elections* below. By the operation of this law independent voting is facilitated, as one who uniformly votes a Democratic ticket may vote in a Republican primary, and similarly a Republican voter may vote in a Democratic primary. No voter, however, can vote in both primaries at the same election. An advantage of this system is that nominations cannot be dictated by political machines. On March 10th, the railroads of the State appealed to the United States Circuit Court for a restraining order enjoining the Kansas State Board of Railroad Commissioners and Attorney-General F. S. Jackson from putting into effect on April 1st the schedule of maximum freight rates, the order for which was entered by the Board on Feb. 14. It was alleged that the new schedule would cause a reduction in freight tariffs of from 20 to 25 per cent. The railroads applying for this injunction were, the Santa Fé and Rock Island, the Missouri Pacific, the Union Pacific, the Burlington, the Missouri, Kansas and Texas, the St. Louis and San Francisco, the Topeka and Northwestern, the Leavenworth and Topeka, the Leavenworth, Kansas and Western, and the Kansas Southwestern. On May 27, United States Judge Pollock granted a temporary order restraining the Railroad Commission from putting these rates into effect. On June 18, the International Harvester Company was fined \$12,600 for violating the State law of stifling competition. It was charged by the State that implement dealers in Topeka were compelled to sign a contract with the company to handle no other harvesting ma-

chinery except that made by the International Harvester Company and the schedule of prices was not to be violated. The company was adjudged guilty on 43 counts. On Feb. 11th, the city of Leavenworth voted to adopt a commission form of government, similar to that of Galveston, Tex. On Jan. 30th, the Kansas Legislature passed a bill for the insurance of bank deposits under the general supervision of the State Treasury Board, but the bill was vetoed by Gov. Hoch, who objected to its details, while himself favoring a joint bank guarantee of deposits.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the election of delegates to the Republican National Convention met in Topeka on March 4. Resolutions were adopted endorsing the administration of President Roosevelt, and the four delegates chosen were instructed to vote for William H. Taft for President. The Democratic State Convention met at Hutchinson in June. The delegates chosen were instructed to vote for William J. Bryan for President. Primary elections for the nomination of candidates for the United States Senate and for State officers were held in the State on Aug. 4. Senator Chester I. Long was a candidate for reelection, and opposed to him was Joseph L. Bristow, who, as fourth assistant postmaster-general under President McKinley, did very efficient service in the prosecution of frauds against the government. Mr. Long had the general support of the railroad and the more conservative business interests of the State, while Mr. Bristow was representative of the more radical element. He received the aid in his canvass of Senator La Follette of Wisconsin, with whose policies he is largely in sympathy. The result of the election was, in general, a great surprise, as it had been commonly expected that Senator Long would be reelected. Of the 165 legislative districts of the State Mr. Bristow carried 105. W. R. Stubbs received the largest number of votes as Republican candidate for Governor, defeating Cyrus Leland by about 20,000 majority. J. D. Botkin was nominated as the Democratic candidate for Governor. In the election of Nov. 3, William H. Taft received 197,298 votes, William J. Bryan 161,086, E. F. Chafin 5033, E. V. Debs 12,420. The plurality of Stubbs for Governor was 34,027. There were elected 40 Democratic Representatives and 6 Democratic Senators, 84 Republican Representatives and 34 Republican Senators. The Republican majority in the Legislature assured the election of Joseph L. Bristow to the United States Senate.

LEGISLATION. Among the laws passed at the legislative session of 1908 were the following: An act was passed providing for the inspection of concentrated feeding stuff and for the marketing of the same. Measures were enacted prohibiting the use of sulphites or any preparation containing sulphur dioxide or any secret preparation in the manufacture of meat products. Products so treated are declared to be adulterated, and the offender is subject to the penalties relating to adulterated foods. Primary election laws were enacted as noted above, and are described in the article **PRIMARIES DIRECT**.

STATE OFFICERS. Governor, W. R. Stubbs; Lieutenant-Governor, W. J. Fitzgerald; Secretary of State, C. E. Denton; Treasurer, Mark Tullay; Auditor, J. M. Nation; Attorney-General, F. S. Jackson; Adjutant-General, to be named; Superintendent of Education, E. T. Fairchild; Commissioner of Agriculture, F. D. Coburn; Super-

intendent of Insurance, Chas. Barnes—all Republicans.

JUDICIARY. Supreme Court Chief Justice, Wm. A. Johnston; Associate Justices, Chas. B. Graves, Silas Porter, Clark A. Smith, Rousseau A. Burch, Henry F. Mason and Alfred W. Benzen, all Republicans; Clerk, D. A. Valentine.

The State Legislature of 1908 was composed of 37 Republicans and 3 Democrats in the Senate, and 94 Republicans and 31 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES**, under the section *Congress*.

KANSAS, UNIVERSITY OF. An institution of higher learning at Lawrence, Kan., founded in 1864. The attendance in 1908-9 was about 2250. In June, 1908, 272 degrees were awarded. A new engineering building erected at a cost of \$250,000 will be ready for occupancy in September, 1909. A close relationship exists with the high schools of the State, 150 preparing students for admission to the freshman class. The endowment of the University is \$151,000, and its income \$294,000, chiefly from the State. The faculty in 1908 numbered 117. The Chancellor is Dr. Frank Strong.

KARSTEN, HERMANN. A German naturalist, died in August, 1908. He was born at Stralsund on Nov. 6, 1817, studied medicine and natural history in Rostock and Berlin, and after traveling in Venezuela and Ecuador (1843-47 and 1848-56), returned to Berlin, where he specialized in botany. In 1868-72 he was professor of botany in the University of Vienna. He made an elaborate study of the palms and flora of the United States of Colombia, and published such works as *Die Vegetationsorgane der Palmen* (1848); *Flora Columbiae terrarumque adjacentium*, etc. (1857-69); *Chesismus der Pflanzenzelle* (1870); *Zur Geschichte der Botanik* (1870), and *Deutsche Flora, pharmazeutisch-medizinische Botanik* (1883).

KAUFMANN, RICHARD VON. A German economist, died on March 12, 1908. He was born in Cologne on Mar. 29, 1850, was educated at the Universities of Bonn, Heidelberg and Berlin, and at first engaged in banking in Berlin. In 1879 he became *privat-docent*, teaching economics in the University of Berlin, and in the same year professor of that subject in the technical college at Aix-la-Chapelle. In 1883 he was connected with the Finance Ministry, and he was one of the experts in finance and economics summoned by Chancellor von Caprivi to give an estimate of the economic resources of Germany at the time the Chancellor's Army Bill was under consideration. His *Die Eisenbahnpolitik Frankreichs* (1896; French translation, 1900) is an important study of the French plan for the State purchase of railroads; his other publications include; *Die Finanzen Frankreichs* (1882, French translation, 1884); *Die Reform der Handels- und Gewerbebekammern* (1883); and *Die öffentlichen Ausgaben der grösseren europäischen Länder nach ihre Zweckbestimmung* (3d ed. 1893). He was also a student of archaeology, and suggested and took part in excavations in northern Syria, Asia Minor and Egypt. At his home in Berlin he had gathered a very important collection representing sixteenth century Italian art.

KEDAH. A State of the Malay Peninsula under the suzerainty of Siam. The first administration report, published in 1907, contains

the following particulars. Area, 3045 square miles; population, about 219,000, mostly Malays, and some Chinese. Alor Star, the capital, has been much improved recently and has the appearance of a prosperous town. The mineral wealth is unknown. The forests are poor. The soil is rich and well watered. Paddy and rice, the principal products, are exported in large quantities. This is noteworthy, as nearly all the other States in the peninsula have to import rice. Considerable land is planted in tapioca. This crop is destructive to the soil, and it has now been arranged that some other crops must be planted with the tapioca in such quantities as to insure that the land shall not be abandoned after three or four years of tapioca growing to an injurious growth ofalang grass. In the Yen district, around the foot of Kedah Peak, coffee and pepper are produced in small quantities. The soil is considered good for rubber, for the planting of which concessions have been granted. Cocoanuts are not produced to any great extent for export. Two steamers run daily between Alor Star and Penang, in the Straits Settlements, and the river is thronged with traffic. The immediate government is by a native Rajah, who is assisted by an English Financial Adviser appointed by the Siamese government. There is a police force of Malays and Sikhs.

KEEFE, DANIEL J. An American labor leader, appointed Commissioner-General of Immigration in December, 1908. He was born near Chicago, Ill., in 1855, and while still in his teens became a "lumber shover" on the Chicago docks. His courage and physical strength soon made him the recognized leader of the dock laborers, and in 1882 he succeeded in banding them together in an organization known as the Chicago Vessel Unloaders' Union, of which he was president for twenty years. After the Chicago union was formed, he found that in order to have an effective union the dock laborers at other Lake ports should also be organized, and in 1892 he established a national organization at Detroit. In 1896 he was appointed a member of the Illinois State Board of Arbitration, of which he was chairman until 1901. He was for some time sixth vice-president of the American Federation of Labor, being the only vice-president of that body, during the Taft-Bryan campaign, who refused to indorse the stand of President Gompers in opposition to Taft's candidacy. This action on his part was used by both the Republican and Democratic parties, the former citing the instance as proof that Mr. Taft was not regarded by all labor leaders as hostile to labor, and the latter charging that Mr. Keefe expected to receive a reward from the Administration in return for his support of Mr. Taft. Mr. Keefe denied the charge, maintaining that he had always been a Republican in politics. In December, 1908, he was appointed by President Roosevelt Commissioner-General of Immigration to succeed Frank P. Sargent.

KELANTAN AND TRINGANU. Two States in the Malay Peninsula, formerly under Siamese suzerainty, ceded to Great Britain in 1908. They lie adjacent to the States of Perak and Pahang, in the Federated Malay States, and were defined as within the British sphere of influence by the Franco-Siamese treaty of 1906.

KELANTAN has an area of 5500 square miles and a population of 300,000, mostly mixed Malays and Siamese, besides 8000 Chinese and 40 Europeans. There are 10,000 aborigines, Sakeis and Jakuns, inhabiting the mountain fastnesses to the south. The established religion is Shafi Mohammedanism, its priests being supported by a system of tithes. There are 40 Buddhist monasteries. Kata Bharu, the capital and sole town of Kelantan, on the Kelantan River, is situated eight miles from the river's mouth. There are seven important villages, with populations ranging from 500 to 4000. The chief exports are copra, gold, betelnuts, paddy, rice, cattle, sheep, pigs, and dried fish. Minor exports are wild rubber, gutta-percha, hides, silk goods, and poultry. The State is believed to be rich in gold and tin. The area under cultivation by natives embraces 450,000 acres. About 21,700 acres have been taken up for coconut and rubber plantations, largely by the Duff Development Company, which is said to own a concession of 2500 square miles, mostly in the hilly and mineral district. The only roads in the State are 4 roads stretching from the capital to a distance of 4, 6, 8, and 30 miles respectively, the last-mentioned extending to the border of Tringanu. The rivers—the Kelantan in the centre, running northward; the Semarak, running east of the Kelantan; and the Golok, west of the Kelantan—and their tributaries constitute the highways of the State. A privately owned steamer, subsidized by the government, carries mails and passengers 50 miles up the Kelantan. There are weekly mails to Bangkok, capital of Siam, and Singapore, Straits Settlements. Telegraphs connect with Bangkok and Pahang. A telephone extends from the capital to a village at the mouth of the Kelantan. The State is ruled by a Rajah, who is assisted by a British Adviser. A company of Sikhs constitutes the police force.

TRINGANU, with an area of about 2500 square miles, is practically unknown. There are no roads, and the principal river, the Tringanu, is rendered useless to navigation half-way on its course to the sea by a series of large waterfalls. Tin is known to exist in the south of the State.

KENNEDY, CHARLES RANN. An English playwright. See **DRAMA**.

KENTUCKY. One of the South Central Division of the United States. Its total area is 40,598 square miles. The population in 1908, according to Federal estimate, was 2,378,000.

MINERAL RESOURCES. The most important of the mineral resources of the State is coal, in the mining of which there has been a record of uninterrupted growth. The production in 1907 was 10,753,124 short tons, with a spot value of \$11,405,038. This production is an increase of 11.39 per cent. in quantity and 16.26 per cent. in value over the production and value of coal in 1906. The increase would have been even greater but for the extraordinary weather conditions that prevailed during November and December, which prevented the usual demand for local consumption. The coal mines in 1907 gave employment to 16,971 men, against 15,272 men in 1906. About two-thirds of the mines of the State were operated on the open shop or non-union basis, and in consequence the eight-hour day is not so generally observed as in some of the other coal-mining States. Kentucky is one of the foremost coal-producing States in the use of undercutting machines. In 1907 there

were 708 of these machines in operation, as compared with 600 in 1906 and 527 in 1905. There were 32 men killed in the coal mines of Kentucky in 1907. According to the estimates of the United States Geological Survey the original coal supply of the States was 124,028,000,000 short tons, from which there had been mined at the beginning of 1908 122,400,000 tons. There were 127,956 tons of pig iron produced in 1907, as compared with 98,127 in 1906 and 63,735 in 1905. The value of the clay products produced in the State in 1907 was \$2,611,364, as compared with a value of \$2,592,423 in 1906. Kentucky ranks second in the output of bituminous rock. The products of crude oil in Kentucky (including Tennessee) showed a decrease from 1,213,548 barrels in 1906 to 820,844 barrels in 1907. The State is a large producer of mineral water. In 1907 736,920 gallons, valued at \$72,373, were produced. Among other mineral products of the State are barytes, cement, lead, lime, sand, gravel, building-stone, and zinc, also small quantities of infusorial earth, iron ores, ochre, and sand-lime brick. According to figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$19,294,341 as compared with a value in 1906 of \$18,758,897. Although a number of new plants were opened and began shipping coal in the State during 1908, the production from some of the older mines was so reduced that the total output of the year fell off between 15 and 18 per cent. as compared with 1907. The exceptionally warm weather that prevailed during the fall decreased the usual demand for domestic consumption.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 84,823,000 bushels, valued at \$55,135,000 from 3,366,000 acres; winter wheat, 8,793,000 bushels, valued at \$8,617,000 from 758,000 acres; oats, 2,803,000 bushels, valued at \$1,514,000 from 173,000 acres; barley, 25,000 bushels, valued at \$18,000 from 1,000 acres; rye, 176,000 bushels, valued at \$150,000 from 13,000 acres; potatoes, 2,356,000 bushels, valued at \$908,000 from 38,000 acres; hay, 675,000 tons, valued at \$7,425,000 from 500,000 acres; tobacco, 195,600,000 pounds, valued at \$17,779,600 from 240,000 acres. The production of tobacco in 1908 decreased from 240,278,000 pounds in 1907, as a result largely of the struggle carried on by the tobacco growers against the American Tobacco Company. (See paragraphs below, and TOBACCO.) The corn crop decreased from 93,060,000 bushels in 1907; wheat, from 8,808,000 bushels in 1907. The production of oats suffered a decrease from 3,379,000 bushels in 1907. Both in the production and value of tobacco, Kentucky ranks first, the value of production being twice as great as that of North Carolina, which occupies second rank. It forms more than one-third the total for the entire country. The farm animals on Jan. 1, 1909, were estimated as follows: Horses, 399,000; mules, 207,000; dairy cows, 402,000; other cattle, 200,000; sheep, 1,071,000; swine, 1,236,000. Since 1900 there has been a decrease of about 14 per cent. in the number of horses and of 35 per cent. in the number of swine, but an increase of 50 per cent. in the number of sheep.

The wool clipped in 1908 was 3,000,000 pounds, valued at \$823,000.

MANUFACTURES. The census of 1905, covering establishments classed as factories, showed \$147,282,478 capital, 59,794 wage-earners, and products valued at \$159,753,968, these figures being increases over those for 1900 of 67.4, 15.6, and 26.3 per cent. respectively. The value of products of leading industries in 1905, and, in parentheses, the per cent. of increase over 1900, were Flour and grist mill products, \$18,007,700 (38.3); lumber and timber products, \$14,539,000 (9); chewing and smoking tobacco and snuff, \$13,117,000 (12.3 per cent. decrease); distilled liquors, \$11,204,649 (14.5).

EDUCATION. The number of pupils enrolled in the schools of Kentucky in 1908 was 501,428, which was 22.48 per cent. of the population. The average attendance was 309,836, and the number of teachers was 9245. An attempt has been made in the last two years to abolish the district system, which is now maintained in only two Southern States, Kentucky and Arkansas, and substitute therefor the county system. A bill was introduced into the Legislature of 1907 abolishing the office of school trustees and establishing county boards of education. This bill passed the House, but was not acted upon by the Senate. A great want in the school system of the State is for rural high schools, which, in other States, are encouraged by legislation.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State are the asylums for the insane at Lakeland, Hopkinsville, and Lexington; the Institution for the Feeble-Minded at Frankfort. There are State prisons at Frankfort and Eddyville. The Legislature of 1907 amended the act of 1906 creating the Kentucky State Board of Control for Charitable Institutions, making it a bi-partisan board of four members, two members from each of the two political parties which polled the largest number of votes for the last preceding election. Members are appointed for a term of four years by the Governor. The expenditures for charities and corrections for 1907 aggregate \$541,132. The State also maintains the Kentucky Institute for Feeble-Minded Children, in which were 173 pupils in 1907; the Kentucky School for the Deaf with an enrollment in 1907 of 378; and the Kentucky Institute for the Education of the Blind.

POLITICS AND GOVERNMENT. The most notable event in the political history of Kentucky in 1908 was the election of a Republican Senator, ex-Gov. William O. Bradley, to succeed James B. McCreary for the term beginning March 4, 1909. From Jan. 1 to Feb. 28, the Legislature was engaged in a deadlock over this election. Gov. J. C. W. Beckham, who was the leading Democratic candidate for the office, lacked, up to the end of the voting, four votes of election. The election of Mr. Bradley was due to the assistance of four Democrats who were opposed to Beckham. In the final vote Bradley received 65 votes. Mr. Bradley is the only Republican who has served a term as Governor of Kentucky since it became a State, and he has long been prominent in local and national Republican politics. In March the Legislature passed an anti-pool room bill, which became effective on June 15. Under the provisions of this bill, any telephone or telegraph company owning property rented for pool-room purposes, personally conducting a pool

room, or working in a pool room, is liable to a fine of not less than \$1000 or more than \$5000 and six months' imprisonment in jail. Considerable difficulty arose over the enforcement of this law at Latonia during the end of October and early weeks of November. The race-track people refused to recognize the ruling of the State Racing Commission, and the latter body revoked their license. Notwithstanding this action, the racing was continued, and the Jockey Club secured a temporary injunction from the Kenton County Circuit Court preventing interference from the State Racing Commission. This matter is still under consideration by the court. The Legislature on March 6 passed a bill providing a fine for any one who violates an agreement to pool tobacco. This was an attempt to end night riding in the State. (See below.) The Monarch Tobacco Company of Louisville on July 31 filed a suit in the Federal Court for \$1,500,000 damages against the American Tobacco Company, the Nail and Williams Tobacco Company and the Mengel Box Company, alleging that their trade had been ruined through the practices of the defendant companies. It was alleged also among other things that the trust coerced jobbers and refused in many instances to sell them tobacco unless they refrained from selling independent brands; also that retailers were induced through premiums and other devices to neglect the sale of independent products.

For an account of child labor enactments in 1908 see CHILD LABOR.

NIGHT RIDERS. For the greater part of the year certain sections of the State were kept in terror by the depredations of so-called "Night Riders," alleged to be representatives of the American Society of Equity, organized to control the price of tobacco. These attacks were directed against independent tobacco growers who refused to enter the pool organized to compel the American Tobacco Company to pay certain rates for tobacco in these sections. The result was depicted by Gov. Willson in his annual message to the Legislature in January, 1908: "Our tobacco is nearly destroyed; large customers are being taught that it is safer and better to buy elsewhere. Large crops remain unsold. Managers who have been promised large prices for pooled crops above the market price have seen the buyers driven from the field, and no one can tell when the end will come, but everyone can see that the result up to this time is that our markets, not only for tobacco, but for other products, are paralyzed, and in many cases ruined; that in large districts the law has been wholly overthrown, and the poor people, who have no one to take care of them, are deprived of the protection of the people's laws, and have lost their liberty and are helpless." On Jan. 3, Gov. Willson issued a proclamation in which he offered a reward of \$500 for the conviction of any person implicated in the raids of the "night riders" in the dark-tobacco belt. This action was the result of a raid made upon the town of Russellville on Dec. 27, 1907; two warehouses and several other buildings were burned and four persons seriously injured by the raiders. On Jan. 7, the "night riders" visited the towns of Sherburne and Bethel. In the latter place an independent warehouse and a general store were burned, and at Sherburne an independent warehouse was destroyed. On Jan. 8, in anticipation of an attack of a body of "night riders," two gatling guns with about 100 men guarded

six large tobacco warehouses. The gatlings were used also as a defence in Frankfort against possible attacks. On Jan. 21 a large tobacco barn was burned near Hopkinsville. At Dycusburg on Feb. 4, 200 masked "night riders" burned a large tobacco house and distillery, causing a loss of about \$40,000. A member of the firm owning the warehouses was taken from his home, tied to a tree and severely whipped. On Feb. 9, another body of "night riders" visited Fredonia, near Hopkinsville, where they blew up a tobacco factory containing 35,000 pounds of tobacco, and burned a barn containing 10,000 pounds. The damage aggregated \$10,000. On Feb. 16, County Judge Crumbaugh and nine tobacco buyers living at Eddyville were taken from their homes by 200 masked "night riders," lashed to a post, and severely beaten. Judge Crumbaugh had made a speech denouncing the Dycusburg raid and demanding an investigation. On Feb. 21, the Law and Order League of Hopkinsville and Christian County presented a memorial to the General Assembly, calling for prompt and vigorous action. This memorial recited that in the city of Hopkinsville alone over \$50,000 worth of buildings had been destroyed, entailing a total loss upon innocent persons in no way connected with the tobacco trade. It was further declared that in half-a-dozen or more counties law-abiding citizens had been dragged from their homes at night and brutally beaten. The memorial called upon the Assembly for aid for the citizens of the community. On Feb. 26, Gov. Willson sent a message to the Legislature urging prompt legislation against the "night riders," and declaring that law enforcement was paralyzed and that a rigid measure was vital to the liberty of the people. He recommended the appropriation of \$25,000 for the prosecution of the "night riders," declaring that only one alleged offender had been indicted and none convicted. He asked for additional power from the Attorney-General in cases where it appeared that the local authorities were likely to fail from any cause to prosecute faithfully. On Mar. 21, a band of masked "night riders" shot and killed Harlan Hedges, an independent tobacco farmer, 7 miles northwest of Carlisle. This was the first invasion by this band of the Blue Grass regions of Kentucky. On April 3, Calloway County, in the heart of the black-tobacco regions, was placed under martial law. The county was declared by authorities to be in a state of anarchy. On April 20, Gov. Willson ordered additional troops to the scene of these outrages. On May 13, Robert H. Hollowell, who sued his brother, John E. Hollowell, and 27 other suspected "night riders" of Caldwell County, received a verdict of \$35,000 damages on account of his having been driven from the State with his family. "Night riders" again visited the vicinity of Hopkinsville on July 22 and burned the station houses of the Illinois Central Railway at Gracey in Christian County; at Cerulean, in Trigg County, and at Otter Pond, in Caldwell County. The railroad company had given the militia authority to camp on its property, and this action had aroused bitter feeling among the "night riders." Following this came other threats of the destruction of the property of the railway, and the company requested the militia to vacate its property. The Governor refused to accede to this request, insisting that the troops had a right to camp on the railroad property, or any other property for which they paid a compensation. The reign of lawlessness con-

tinued throughout the State during the summer and early months of autumn. On October 12, as the result of the murder of a tobacco farmer in Hickman County, together with his wife and two children, Gov. Willson made an extreme appeal to the people of the State to put an end to these outrages. He said: "This crime is the outgrowth and the logical result of the operation of the night riders' crimes in the State. It is only one remove from civil war, and the safety of our institutions and what we have of civilization is involved, and the only salvation for the name and honor and character of Kentucky is for the whole people to rise up in their might to save their liberty, uphold their law and mercilessly put down murder, arson, intimidation and proscription wherever they dare show themselves." The Governor called upon the people to assemble in their respective neighborhoods and "to take strong, prompt and effective measures to punish every cowardly scoundrel who rides the roads to threaten his neighbors." In November an arrangement was made between the American Society of Equity and the American Tobacco Company, whereby the latter was to buy tobacco at the rates insisted on by the associated growers. This action put an end to these troubles. (See TOBACCO.)

CONVENTIONS AND ELECTIONS. The Democratic State Convention met on June 11. The delegates selected were instructed to vote for William J. Bryan as President. The Republican State Convention met at Louisville on May 7, and adopted resolutions binding the delegates in the National Convention to vote for William H. Taft. As the result of dissensions in the convention, 22 of the 26 votes were cast for Mr. Taft, and the remaining two were contested. In the election of Nov. 3, the State was carried by William J. Bryan by about 8,000 plurality, the vote being: Bryan, 244,092; Taft, 235,711; Chafin, 5887; Debs, 4060.

OTHER EVENTS. Caleb Powers, former Secretary of State, who had been under arrest and imprisonment, as an accessory in the murder of William Goebel, the Democratic candidate for Governor who was declared elected in 1903, was pardoned by Gov. Willson on May 3. Powers had been tried four times. The result of the fourth and last trial in 1907 was a disagreement of the jury. James Howard, who was also under arrest for the same murder, was also pardoned. Judge James Hargis, for years one of the central figures in the famous Hargis-Cockrill feud, a leading local politician, was killed on Feb. 6 by his son, Beauchamp Hargis. In the trial of the case the jury failed on Dec. 26 to agree on a verdict and was discharged. On Feb. 10, nine men were killed as the result of an explosion of gas in the mine of the Moody Coal Company at South Carrollton.

In the latter part of December trouble broke out in the town of Stearns as the result of a strike among miners. The trouble grew out of the strikers violating the injunction granted several months previous by Federal Judge Cochran to the Stearns Coal and Lumber Company, ordering the miners not to interfere with non-union labor. The miners resisted the attempts of the United States marshals to arrest several among their numbers. The town was placed under martial law Dec. 27.

In a battle between illicit distillers and a posse of revenue officers on the Kentucky and West

Virginia border on Dec. 5, a deputy sheriff and Ben Vinson, a noted outlaw, were killed.

LEGISLATION. Among the important measures enacted at the legislative session of 1908 were the following: A child labor law was enacted, which will be found described in the article CHILD LABOR. An act was passed also which makes attendance upon schools by children between seven and fourteen years of age, in cities of certain classes, compulsory, unless they are taught privately or have acquired the common school advantages of instruction. A pure food law was enacted as well as measures providing for the encouragement of the establishment of a tuberculosis sanitarium. An important measure was passed, authorizing tobacco pooling, which was made necessary by the disturbances caused by the "Night Riders." (See above.)

STATE OFFICES. Governor, A. E. Willson; Lieutenant-Governor, W. H. Cox; Secretary of State, Ben H. Bruner; Treasurer, Edwin Farley; Auditor, Frank P. James; Attorney-General, J. B. Breathitt; Superintendent of Education, John G. Crabbe; Commissioner of Agriculture, M. C. Rankin—all Republicans.

JUDICIARY. Court of Appeals: Chief Justice, Ed. C. O'Rear, Rep.; Justices, W. E. Settle, Dem.; H. S. Barker, Dem.; Thomas J. Nunn, Dem.; John M. Lassing, Dem.; John D. Carroll, Dem.; J. P. Hobson, Dem.; Clerk, Napier Adams, Rep.

The State Legislature of 1908 was composed of 22 Democrats and 16 Republicans in the Senate, 51 Democrats and 49 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under the section Congress.

KERN, JOHN WORTH. An American politician, Democratic candidate for Vice-President in 1908. He was born in Howard County, Ind., on Dec. 20, 1849, graduated at the University of Michigan in 1869; and was Supreme Court reporter of Indiana from 1885 to 1889. In 1892-96 he was a State Senator, and in the following year he was chosen City Attorney of Indianapolis. In 1900 and again in 1904 he was the unsuccessful nominee for Governor on the Democratic ticket. He also received the complimentary vote of the Democratic minority in the Legislature of 1905 for United States Senator. At the Democratic National Convention, held in Denver in July, 1908, he was nominated for Vice-President. After the election of 1908, when a Democratic majority in the Legislature was assured, he was prominently mentioned for the United States Senatorship. (See PRESIDENTIAL CAMPAIGN.)

KIAMIL PASHA. TURKISH GRAND VIZIER, See TURKEY.

KIAO-CHAU, or KIAO-CHOW. A harbor, town, and district on the east coast of the province of Shantung, China, leased to Germany for a period of 99 years from Mar. 6, 1898. Area of the district, exclusive of the bay, 193 square miles; population, 120,000. There are about 5000 Europeans. The German sphere of influence extends 31 miles beyond high-water mark, embracing 2500 square miles of area and a population of 1,200,000. Tsingtau, with the best harbor on the coast, is the capital; in 1907 it had a population of 31,509 (1484 Europeans). It is a modern city, with macadamized streets, water-works, electric lighting, churches, schools

for Germans and Chinese, hospitals, hotels, post office, market halls, a slaughter-house, etc. In Dec., 1908, it was announced that the German government intended to establish a commercial high school as a basis for technical and medical schools, to be followed later by schools for political economy, forestry, and agriculture. The Chinese government had expressed its readiness to support the new school with a subsidy and to admit the graduates to examinations for State positions. Acacias have been extensively planted on the bare hills, and in the winter of 1907-8 acacias planted in 1902 and 1903 were cut for the first time and sold to the Shantung Mining Company for mining timber. This company works coal mines at Fangtse and Poshan, and iron mines at Tchin-ling-chen. (See CHINA.) A railway of 247 miles runs from Tsingtau to Tsinan, the capital of Shantung, with a branch line of 30 miles to Poshan. The railway is under the same management as the mining company, which owns mining areas within a ten-mile zone on both sides of the railway. The port is included within the Chinese Imperial Customs. The imports and exports in 1907 amounted to 16,416,053 and 8,478,325 Haikwan taels respectively. The administration is by a Governor under the German Navy Department. The budget for 1908-9 balanced at 11,465,753 marks, of which 9,739,953 was an Imperial subvention.

KIELHORN, LORENZ FRANZ. A German Sanskrit scholar, died in March, 1908. He was born at Osnabrück, was educated at Göttingen, Breslau, Berlin, Oxford and London, in 1866-81 was professor of Sanskrit in the Deccan College at Poona, and in 1882 became a member of the faculty at Göttingen. His publications include *Ātmanavas Phitsutra*, with translation (1864); A Sanskrit grammar (1870, 4th ed. 1896); *Kāṭyāni and Patanjali* (1876); and a *Report on the Search of Sanskrit Manuscripts* (1881). Upon the death of Bühler he became editor of the *Grundrisses der indo-arischen Philologie*. In 1903, with Prof. F. Schmidt, of Berlin, he was sent by Emperor William to Oxford as a representative of the German Education Office in the matter of the German Rhodes scholarships.

KINGSTON, CHARLES CAMERON. An Australian statesman, died on May 11, 1908. He was born in Adelaide, on Oct. 22, 1850, was educated at the Adelaide Educational Institute, was admitted to the bar in 1873, and became a Queen's Councillor in 1889. In 1881 he was elected to the Assembly for West Adelaide. He has been five times reelected, and since 1901 had been a member of the Commonwealth House of Representatives. He had served as Attorney-General (three times), and as Chief Secretary (1892); was Premier from 1893 to 1899—twice as long as any previous ministry had held office—and had also served as Minister of Trade and Commerce (1901-03). He advocated the adoption of a protective tariff, opposed Chinese immigration and drafted the bill for its regulation (agreed to, in 1888, by all of the colonies excepting Tasmania), and presided over the Australian Federal Convention, in 1897-8, which formulated the bill establishing the Australian Commonwealth. He also urged woman's suffrage, industrial conciliation, and the adoption of a system of land and income taxation, and death duties.

KITES. See METEOROLOGY.

KNAPP, WILLIAM IRELAND. An American educator and author, died on Dec. 11, 1908. He was born at Greenport, L. I., on March 10, 1835, and graduated at Colgate (then Madison College) in 1860. He was professor of modern languages at Madison in 1860-65, and at Vassar in 1866-68. During the period 1869-80 he traveled extensively through Spain. In 1881 he was appointed professor of modern languages at Yale, and in 1892 took the same chair at the University of Chicago, where he remained until 1895. Retiring from active teaching, he went abroad and lived in England and France. He was an authority on Spanish literature and history. Among his publications are: *Spanish Grammar* (1882); and *Borrow's Lavengro and the Romany Rye* (1900).

KNOWLES, Sir JAMES. An English editor, died on Feb. 13, 1908. He was born on Oct. 13, 1831, the son of an architect, was educated in that profession at University College, and practised it, in his father's office, with considerable success. In 1867 he met, and thereafter became an intimate friend of Tennyson, for whom he designed "Aldworth," the poet's home in Blackdown. He founded in 1869 the Metaphysical Society, which was composed of the most distinguished representatives of religion and science. In 1870 Knowles became editor of the *Contemporary Review*, which he conducted until 1877, in which year he established the *Nineteenth Century*, changed in 1901 to the *Nineteenth Century and After*, of which he was editor during the remainder of his life.

KNOX, PHILANDER CHASE. United States Senator (Republican) from Pennsylvania. He was born in Brownville, Pa., on May 6, 1853, graduated at Mount Union College, Ohio, in 1872, and three years later was admitted to the bar. From 1876 to 1877 he was United States District Attorney for the Western Pennsylvania District, and in 1901 was appointed United States Attorney-General by President McKinley. He was continued in office by President Roosevelt. Under Mr. Knox's administration, the Beef Trust was put under injunctions, the officers of the railways engaged in the cotton-carrying pool were indicted and forced to abandon their combination, and the "merger" of the Northern Securities Company, which threatened to destroy traffic competition in the Northwest, was dissolved. He showed great skill in dealing with the legal problems arising from the acquisition of the Panama Canal, and he outlined and recommended the laws which effected the establishment of the Department of Commerce and Labor. In 1905 Mr. Knox was elected United States Senator from Pennsylvania. The ability Mr. Knox had shown while in the government service caused him to be prominently mentioned for the Republican nomination for President, and in the National Convention he received 68 votes, of which 64 were from his own State and 4 from New Jersey. In Dec., 1908, Mr. Knox was asked by President-elect Taft to become Secretary of State in the latter's Cabinet, and accepted. Mr. Knox received the degree of LL.D. from the University of Pennsylvania in 1905, and from Yale in 1907.

KONGO. See CONGO.

KOREA. A peninsula of eastern Asia, a protectorate of Japan. Area, 84,420 square miles; population (1906), 9,781,671. Of foreigners there were, in 1907, 98,495 Japanese, 3661

Chinese, 286 Americans, 138 British, 103 French, 54 Germans, and 48 other Europeans. Seoul, the capital, had 193,606 inhabitants in 1902. Ping-Yang has 40,000 inhabitants; Suwon, 11,000 (1000 Japanese); Fusan, 81,700; Chemulpo, 46,100; Massampo, 57,600; Wiju, 52,700.

PRODUCTION. Gold veins are found over the entire country. The most important gold mines, situated in the Unsan district, in northwestern Korea, yielded \$1,150,000 worth of bullion in 1907. They are owned by an American company. In 1908 the Americans also secured possession of the Kapsan copper mines, in northeastern Korea, and of graphite mines in the southeast. Italian, German, French, and Japanese interests are engaged in developing copper, gold, iron, and graphite mines. Petroleum was discovered in 1908 and a concession was granted. Lead and silver deposits await exploitation.

The agricultural products include millet, barley, oats, and beans in the north, and rice, wheat, tobacco and cotton in the south. Cotton culture is improving, owing to the efforts of the Cotton Plantation Association of Korea and of the model farm and agricultural college. The latter is situated at Suwon, 25 miles from Seoul. It was initiated by the Japanese, but was later transferred to the Korean government. About 212 acres are used for experimenting purposes, and the annual appropriation for the institution is about \$44,000. Methods of agriculture are improving under the influence and example of Japanese settlers. The rice crop of 1908 was estimated in September to exceed the average crop by 30 per cent. Whaling and fishing along the coast are carried on by the Japanese. In 1908 a factory was planned by a number of Koreans for dyeing, weaving, embroidery, carpentry, and smithing. The Japanese government organized in 1908 the Far Eastern Colonization Company, with a capital of 10,000,000 yen (1 yen=49.3 cents), for the purpose of furthering Japanese settlement in Korea. The Company may also engage in mining, manufacturing, etc. Shareholders are limited to Japanese and Koreans, and a number of shares were taken by the Japanese and Korean imperial houses. The company is to receive a government subsidy of 300,000 yen annually for eight years.

COMMERCE AND COMMUNICATIONS. The imports of foreign goods and exports of native produce in 1907 amounted to 41,387,540 and 16,473,834 yen respectively, against 30,291,322 and 8,132,844 in 1906. The principal imports were cotton goods, woollens, metal goods, railway materials, silk piece goods, timber, and machinery. The principal exports were valued in 1907 as follows, in yen: Rice, 7,558,505; beans and peas, 3,935,632; red ginseng, 1,200,066; gold, 4,359,000. Other exports were: Cattle, hides and skins, timber, wheat, coal, copper, raw cotton, paper, fish, etc. The trade is principally with Japan, followed by China, Great Britain, and the United States. There are over 688 miles of railway and 2872 miles of telegraph line, both being owned by the Japanese government. The shipping entered and cleared in 1907 aggregated 4,088,671 tons, mostly Japanese. The improvement of the harbors is steadily progressing. The old Korean nickel coinage is slowly giving place to the Japanese.

GOVERNMENT, FINANCE, ETC. The Emperor Yi Chōk, born Mar. 25, 1874, ascended the throne

on the abdication of his father, July 19, 1907. The real power in the country is the Japanese Resident General—in 1908, Prince Ito. The native army has been disbanded, excepting one battalion of Imperial Guards. A Japanese garrison is permanently stationed, and the reorganized police force contains a large number of Japanese. A completely independent judiciary was established in 1908 by the Japanese, and new codes were in process of preparation. The budget for 1908 estimated the revenue at 20,286,732 and the expenditure at 20,296,073 yen respectively; for 1909 there were 21,434,733 and 22,268,655 yen respectively. The revenue from import duties amounted in 1907 to 2,319,259 yen; from export duties, 758,754 yen. The public debt stood on Feb. 1, 1908, at 12,333,968 yen, besides 2,000,000 yen of treasury notes.

ARMY. The 13th division of the Japanese army reinforced by the 12th brigade of infantry and 4 squadrons of cavalry occupied Korea during the year 1908, with headquarters at Seoul.

HISTORY.

It will be recalled that the protests of Korean delegates in 1907 at The Hague against the Japanese violation of Korean independence were in vain and that no attention was paid to the denunciations by the Korean prince of the cruelties committed by the Japanese in his country. In the Palace revolution of July, 1907, the occasion of some serious street-fighting, the Emperor was forced to resign by his own ministers at the instance of the Japanese. The imperial seal was now transferred to his son (July 19) and the Palace was occupied by Japanese troops. No European nation was willing to interfere, believing that in the "decrepitude and disorganization" of the Korean government it would be unwise to deprive Korea of Japanese tutelage. Prince Tyong-oui-Yi stated his country's grievances in a vigorous document. He said that if Japan complained of the action of the Californians, Korea might complain with equal force of the action of Japan. Korean students in Japan were not admitted to the same schools as the natives but into separate schools of an inferior class. At home they had to endure the insolence of a low class of Japanese immigrants. There was not a village, he said, that could not cite outrages of the Japanese upon the inhabitants, often upon women and children. These complaints were of no avail. The Japanese forces in Korea were reinforced. The new Emperor at the instance of Prince Ito ordered the punishment of The Hague envoys and of men of his father's court suspected of fostering resistance. Japanese artillery was stationed in the Palace courtyard and the patrols in Seoul were increased. By the new Japanese-Korean convention signed July 25, 1907, the Korean administration was placed under a Japanese Resident General, whose approval was required for every law and decree dealing with important affairs of state, for the nomination of officials and for the employment of foreigners; a distinct line was drawn between administrative and judicial affairs; and the clause of the convention of Aug. 22, 1904, providing for a financial adviser was annulled. Henceforth Prince Ito was the real ruler. The young heir to the throne was sent to Japan to be educated. In Japan and in Europe generally it was now thought that

the possession of the country was assured, and that the Koreans would prove docile.

KOREAN OPPOSITION. The Japanese colonization of Korea continued in 1908. The Palace revolution of the previous year had started unorganized efforts at resistance, and during 1908 the tax collections were far smaller than in the previous year, and threatened to cause a considerable deficit. Plots against Japanese functionaries were also reported in the Japanese papers as, for example, the attempted derailment of Prince Ito's train at the end of April. But the main resistance showed itself in a scattering guerilla warfare, about which little definite could be learned, owing to lack of trustworthy information. Bands of two or three hundred marauders appeared at various points, especially in the mountains, acting without concerted plan, and subsisting, no one knew how, but seeming everywhere to be well armed and in some instances having cannons. Out of the thirteen provinces, six were apparently in a permanent state of revolt. The reports of engagements between the Japanese and these insurgents which appeared in Japanese journals represented the conflicts as frequent and sanguinary, but generally placed the enemy's loss at ten or twenty times that of the Japanese. Thus they reported that 53 of these conflicts took place in May with a loss of 500 Koreans and only about 20 Japanese. Some of the engagements were said to have lasted four or five hours. In some Japanese quarters it was admitted to be a real national movement, but the press generally declared that the insurgents had been gradually scattered and were hardly more than groups of bandits. There were, however, signs in the later months of the year that the revolt was by no means put down.

ALLEGED KOREAN GRIEVANCES. One of the Japanese journals attributed the bad temper of the Koreans to the excesses of the soldiers and the treatment of the Koreans as an inferior race. Critics of Japan's policy agreed in this view. The Japanese press referred frequently to the Koreans as a people but little removed from savagery and declared that any measures were justified against the "bandits." Prominent Japanese officials called them a degenerate race. Recent writers on Korea have remarked on the violence and injustice of the Japanese, and it has even been said that on account of the depredations of Japanese agents, Korea has profited nothing from her change of masters. Among the specific grievances alleged, the following may be mentioned: Corrupt and negligent local administration of justice, and inactivity of Japanese police against Japanese malefactors; issuance of paper money in Korea far in excess of legal limit; expropriation of lands of frequent occurrence, as, for example, the confiscation by the Ministry of Marine of a strip of land behind Port Lazareff; the fear that the corvée will be established in Korea as demanded by some Japanese newspapers and that the natives will eventually become serfs upon their lands; the increase of Japanese troops (new regiments were sent to Korea in 1908) and of Japanese functionaries; the suppression of Korean journals. To reassure the people who feared that the Japanese would seize all the land and appropriate all the offices, a force of 4,000 gendarmes was organized from among the Koreans themselves, many of the recruits being ex-rebels. As to

the judiciary, radical reforms were undertaken by the Japanese. A codification of the laws was completed under Professor Ume and an organization of the judiciary undertaken. Arrangements were made for new law courts with Japanese experts on the bench. In June it was announced that the imperial assets had been transferred to the national treasury, thus removing the means which they had previously afforded of supporting court parasites and political intrigues.

THE NATIVE PRESS. That the spirit of independence still lingered, appeared from the repressive measures which the Japanese authorities thought it necessary to enforce against the press. A press law was promulgated in the latter part of April whereby the sale of any paper containing matter subversive of the public peace was forbidden under penalty of fine or imprisonment. Almost immediately (May 1) a Korean paper (the *Daihan*) was suppressed for publishing an appeal to the natives to shake off their apathy and struggle for their independence, calling to their minds the examples of Mazzini and Washington. It was controlled by a British subject named Bethel, the proprietor of the *Korean Daily News*, and other pro-Korean journals which assumed to be extra-territorial and therefore exempt. The government, however, after negotiations with the British authorities, had an action brought against Bethel for the suppression of the *Daily News* under the Order in Council forbidding any British subject to publish articles offensive to the Korean government. At the time it was found that the *Daily News* had already suspended publication. Six other Korean papers were suppressed on May 6, and another on May 27. Meanwhile, on May 21, the Resident General forbade any journal to publish anything about the suppression of the insurrection.

KRETSCHMER, EDMUND. A German composer, organist and conductor, died on Sept. 14, 1908. He was born in Saxony, in 1830, and received his musical education at the Dresden Conservatory. In 1854 he was organist of the Catholic church in Dresden, and in 1863 was appointed court organist to the King of Saxony. A mass composed by him was awarded a prize at the international competition held at Brussels in 1868. He was the organizer and conductor of several choral societies. His compositions include three operas (*Die Folkunger*, 1874; *Heinrich der Löwe*, 1877; *Schön Rotraut* 1887), suites and miscellaneous instrumental pieces, and several masses.

KWANG-CHOW-WAN. A territory on the southern coast of China, north of the island of Hainan, leased to France in April, 1898, for 99 years. In November, 1899, two islands commanding the entrance to the bay were ceded to France. The total area is about 270 square miles. The population in 1906 was 176,310. The port is free. The foreign commerce amounts to about \$2,500,000 annually. In 1900 the territory was placed under the Governor-General of French Indo-China.

KWANG-HSU. Emperor of China, died on Nov. 14, 1908. He was born on Aug. 2, 1872, the son of Prince Chun (the seventh son of the Emperor Tao-kuang, and a brother of the Emperor Hsien-feng), and was named, at his birth, Tsai-t'ien. The Emperor of China at this time was T'ung-chi, the son of Tze-Hai, but upon his

death, in 1875, Tze-Hsi, who was an aunt of Tsai-tien, caused him to be placed on the throne under the title of Kwang-Hsu. In this *coup d'état* Tsai-an was believed to have had the co-operation of Li Hung Chang. In 1888 Kwang-Hsu was forced to marry a niece of Tze-Hsi, a union which still further strengthened the position of his masterful aunt, and lessened his own independence. It came about, therefore, that even after he reached his regal majority, at the age of 18 years, many of the most important functions of his supposed absolutism were withheld from him by Tze-Hsi. The complete subjection of Kwang-Hsu came in 1898, when (on Sept. 20) Tsai-tien, caused him to be placed on the throne propaganda, under the encouragement of the Emperor, caused his palace to be occupied by royal troops, who thereafter kept him isolated and virtually a prisoner. Incidentally six of his advisers, known to be in favor of the reform programme, were apprehended, and promptly executed. From this time Kwang-Hsu had little, if any, active part in the actual government of his country. Consult the biographical sketch in the *London Times* of Nov. 16, 1908. (See CHINA and Tze-Hsi.)

KWANTUNG. A Japanese leasehold in southern Manchuria, originally leased on March 27, 1898, by China to Russia for a period of 25 years, and transferred by Russia to Japan on Dec. 22, 1905. Area, 1221 square miles; population (1907), 405,685. Port Arthur and Dairen (Dalny) are situated at the southern end of the peninsula. The former had 5882 Japanese inhabitants in 1908; the latter, 18,967. Since the Japanese occupation there have been started several new industries, notably salt works, a cement factory, gas and electrical works, horse-breeding, etc. The port of Antung was opened in March, 1907, with Tatungkow as a subsidiary port. In July, 1907, an office of the Chinese Maritime Customs was opened at Dairen, which thus ceased to be a free port. For the imports and exports of Antung and Dairen see under CHINA, *Commerce*. Between Dairen and New York there is a regular steamship service. The budget of Kwantung for 1908-9 balanced at 4,653,802 yen (1 yen=49.8 cents). The Japanese Governor-General in 1908 was Viscount Oshima. The Governor-General of Kwantung also protects and controls the Japanese railways in Southern Manchuria, commands the troops, and has a general direction of political affairs.

LABOR. AMERICAN FEDERATION OF. The events of greatest importance in connection with the American Federation of Labor during 1908 were the controversies over the right to boycott and the limitation of the power of the courts in the issue of injunctions, and the political activity undertaken to enforce the Federation's demands. The decision of the United States Supreme Court in the case of *Loewe vs. Lawlor* (See *BOYCOTT*), declaring the boycott illegal, was the signal for a demand that the Sherman Anti-Trust Law should be so amended as not to imperil the existence and activities of trade unions. At the same time intense feeling was being aroused in the Federation over the alleged abuse of the restrictive power of the courts. Believing that determined and impressive action was necessary, a conference of delegates from the 116 national and international unions affiliated with the Federation was called to meet in Washington March 18. Delegates from the Farmers American Society of Equity were also seated.

This conference issued a "Protest to Congress" and an "Address to Organized Labor and Farmers of the Country." The "Protest" recounted the recent unfavorable actions of the courts in declaring the Federal Employers' Liability Law void (see *EMPLOYERS' LIABILITY*), and the Erdman Act unconstitutional in part (see *TRADE UNIONS*), in outlawing the peaceful boycott, and in restricting the use of speech and press through the injunction (q. v.). It called upon Congress to remedy all of these injustices by new laws. The "Address to Workers" called upon workingmen to stand together, and to oppose labor's enemies and support its friends; it declared that industrial rights and personal liberties had been taken away and that "the most grave and most momentous crisis ever faced by the wage-workers of our country is upon us."

With reference to the boycott, the "Protest" declared that the Sherman Anti-Trust Law was never intended to apply to labor organizations, that it applied to combinations of dollars and not of men. It therefore demanded that the law be so amended as to exempt "organizations not for profit and without capital stock and the members of such organizations or associations," and also so as to prohibit the application of that law "to any arrangements, agreements or combinations among persons engaged in agriculture or horticulture, made with a view of enhancing the price of their own agricultural or horticultural products." This demand was of course denounced by a considerable portion of the press as an appeal for special and class legislation. It was pointed out on the other hand that, in view of the language of the court in both the hatters' boycott and the Buck's injunction cases, there was at stake the life not only of trade unions, but also of many organizations, such as consumers' leagues and civic federations, striving for social uplift. The "Address of Workers" called upon labor and the friends of labor to hold mass meetings in protest, and to oppose politically those unfriendly to the true interests of working people. See *INJUNCTIONS*.

Bills embodying the demands of the "Protest Conference" were at once introduced into Congress. Moreover, the "Address to Organized Labor" led to scores of mass meetings throughout the country, from which petitions were sent to Congressmen and Senators. The result was a large number of nominal anti-injunction bills and bills exempting trade unions from the Anti-Trust Law. The Federation lobby canvassed the Congressmen and reported that 250 had signified their willingness to vote for the Federation's bills. However, the bill to amend the Sherman Act was not reported out of the House Judiciary Committee, and the dominant sentiment in both House and Senate appeared against taking action on the anti-injunction measure. The Federation blamed its old opponents, Speaker Cannon and Congressman Littlefield, largely for the inaction. The latter headed the sub-committee having charge of the injunction bills. Mr. Gompers appeared before the House Judiciary Committee on April 4 in behalf of the bill to amend the Sherman Act. He claimed that there was a clear understanding, at the time this act was passed, that labor unions would not be included in its provisions, and cited numerous judicial decisions upholding the right of laborers to combine to further their interests by peaceful means.

The effort to secure immediate action from Congress having failed, the executive committee of the Federation at once made plans for political action. They presented their demands to the National Conventions of the Republican and Democratic parties. The latter's platform incorporated unequivocal statements on all the Federation's principal demands, and the Federation officials immediately entered the political arena in behalf of the Democratic Presidential candidate. Under the slogan "reward labor's friends and rebuke its enemies," President Gompers urged upon members of the Federation and friends to discriminate carefully between candidates for legislative and judicial offices high and low. He set forth the futility of efforts to secure political favors so long as union men vote on the basis of party allegiance, instead of independently in labor's interest. He had published in the *May American Federationist* a complete list of Congressmen, with the vote for each in 1904 and 1906, showing how the change of a few votes would in many cases have changed the result. The espousal of the Democratic cause by the Federation leaders called forth a severe arraignment from President Roosevelt. Efforts were made by Republican politicians to cause disaffection among the officers of the national and international unions of the Federation by the assertion that Mr. Gompers was claiming power to deliver the labor vote. President Gompers denied repeatedly that he was attempting to interfere with the free exercise of voting privileges. There was some dissent, however, the most conspicuous case of disaffection being that of Daniel J. Keefe, sixth vice-president of the Federation. He was nominated by President Roosevelt on Dec. 1 for appointment as Commissioner-General of Immigration. Meanwhile he had been censured by the convention of the Federation for rejecting a policy adopted by the executive committee of which he was a member. While the results of these political efforts could not be distinguished in the final vote, they gave to union labor the most solid political front it has yet attained in the United States. Political agitation was also largely responsible for a further affiliation between the Federation and organized farmers. In October a tacit agreement was entered into between the Federation officials and the Farmers' National Union to assist each other politically.

At the annual convention of the Federation at Denver in November, Samuel Gompers was again elected president. His political policy was unanimously approved, even the Socialist delegates voting to ratify it. The convention made it clear by express resolution that it favors the policy of giving political support to those who in Congress and State legislatures act favorably to the interests of the industrial population. The convention declared in favor of independence in politics, stating that "the American labor movement is not partisan to a political party; it is partisan to a principle, the principle of equal rights and human freedom." Resolutions were adopted favoring an extension of the civil service; requesting an educational test for immigrants; instructing the executive committee to devise plans for organizing agricultural laborers; favoring equal woman suffrage; urging women to organize and promising support to unions of women workers; favoring

free text-books; declaring for a more extensive use of union labels; endorsing the Massachusetts system of savings-bank insurance and old-age annuities; opposing the principle of compulsory arbitration, but favoring a greater use of voluntary arbitration; demanding that municipal, State and national governments provide work for the unemployed by public construction and improvements; and providing for a committee of fifteen to investigate industrial education at home and abroad. These resolutions contain, in large part, the platform of organized labor in the United States.

LABOR LEGISLATION. A very noteworthy movement in labor legislation is that represented by the International Association for Labor Legislation, which held its 5th annual meeting at Lucerne, Switzerland, Sept. 28-30, 1908. Here were brought together representatives from practically all Western nations. This Association seeks to overcome the impediment to advanced labor legislation that arises from international competition. If one nation increases its protection of women and child laborers, or elevates the conditions of labor in the direction of greater health and safety, it thereby increases the cost of production within its borders and betters the opportunities of its competitors. The International Association pursues the policy of securing agreements among competing nations to enact and enforce certain uniform regulations. To accomplish this purpose, the Association seeks to acquire a most intimate knowledge of labor conditions in various countries, to arouse public sentiment, and to secure the enactment of a minimum standard. Through its efforts at least fourteen States of Europe have signed a convention absolutely to prohibit night work by women; and fully one-half of the States interested in the match industry have agreed to prohibit the use of yellow phosphorus in their manufacture. The 1908 meeting of the Association considered the subjects of white lead and other industrial poisons, the employment of children, home work, and insurance of workmen.

In the United States the American Association for Labor Legislation, organized in 1906, has not achieved any notable results. The competition between States in this country is an impediment to advanced labor legislation comparable to that of competition between European countries. During 1908 vigorous efforts were made to organize branches in the leading industrial States, and thus secure an organization for common action. For legislation of the year see **CHILD LABOR, TRADE UNIONS, EMPLOYERS' LIABILITY, and INDUSTRIAL ARBITRATION AND CONCILIATION.**

LABUAN. An island off the northwest coast of Borneo, attached since Nov., 1906, to the Straits Settlements (q. v.). Area, 30¼ square miles; population (1905), 9000. Victoria, the capital, has 1500 inhabitants. Rice and sago are exported, as well as coal, of which about 50,000 tons are raised annually. The imports and exports in 1907 were valued at 1,223,031 and 1,254,542 dollars (about 50 cents each) respectively. The revenue and expenditure in the same year were 104,660 and 96,835 dollars. The Resident in 1908 was M. S. H. McArthur.

LACROSSE. Greater enthusiasm and interest is accorded lacrosse in Canada than in the

United States, although the game in the latter country is steadily increasing in favor. In the contest for the championship of the National Lacrosse Union of Canada, seven teams were entered and there was a close struggle for the highest honors, which were finally won by the Tecumseh team. The Shamrocks of Montreal, who won the championship in 1907, made a very poor showing. The strongest team in the United States was that of the Crescent Athletic Club, which defeated the Toronto A. A. A., the Brantford Club, Ontario, and Montreal A. A. A. The championship of the Inter-Collegiate Lacrosse League, Northern Division, was won by Harvard with three victories and no defeats. Cornell, which won the championship in 1907, finished second with two games won and one lost. The Southern Division championship was again won by Johns Hopkins, which won all three games played.

LADRONE ISLANDS, or **MARIANNE ISLANDS**. A group of islands in the Pacific, north of the Caroline Islands and east of the Philippine Islands. Excepting Guam (q. v.), they belong to Germany. The German islands have an area of 250 square miles and 2646 inhabitants (1904). In 1907 there were 31 whites (26 German). In 1906 the imports and exports amounted to 238,000 and 56,000 marks respectively. The seat of government is on the island of Sarpan. The islands are attached to German New Guinea (q. v.).

LAFAYETTE COLLEGE. An institution of higher learning founded in 1832 at Easton, Pa. The college maintains seven courses of study leading to degrees in arts, science and philosophy, and civil, mining, and electrical engineering, and chemistry. For the year 1908-9 the enrollment was 440 undergraduate and 12 graduate students, with a faculty of 39. There are 40 buildings including the homes of the professors. The property is valued at \$1,525,651.48, of which \$731,259.23 is income bearing. The library contains 35,000 volumes. The President is Ethelbert Warfield, D.D., LL.D.

LA FOLLETTE, ROBERT MARION. United States Senator (Republican) from Wisconsin. He was born at Primrose, Wis., on June 14, 1855, graduated at the University of Wisconsin in 1879, and in the following year was admitted to the bar. He was district attorney of Dane county from 1880 to 1884, when he was elected representative to Congress where he served until 1891. In Congress he served on the Ways and Means Committee and assisted in the framing of the McKinley Tariff Bill. He was elected Governor of Wisconsin in 1900 and was reelected in 1902 and 1904. In January, 1905, he resigned the governorship to become United States Senator. As Governor he successfully advocated direct primaries, the taxing of railway property in the same manner as other property, and the Constitutional control of railway rates within the State. As a Senator he has alienated himself from many of the conservative Republican leaders because of his so-called radicalism. During the first session of the Sixtieth Congress, he bitterly attacked the Aldrich Currency Bill and its successor in compromise form, the Aldrich-Vreeland Bill, and joined with the Democrats in the filibuster conducted against that measure in May, 1908. In the campaign for the Republican presidential nomination in 1908, Senator

La Follette was put forward as the candidate of Wisconsin and received the votes of 25 delegates in the National Convention. After the November election, it was announced that Senator La Follette was to establish a weekly political paper along the lines laid down by Mr. Bryan's *Commoner*. Senator La Follette received the degree of LL.D. from the University of Wisconsin in 1907.

LAHM, FRANK P. See **AERONAUTICS**.

LAMBETH CONFERENCE. See **ENGLAND, CHURCH OF**.

LANDELLE, CHARLES. A French painter, died on Oct. 18, 1908. He was born in Laval, France, in 1821, and studied under Ary Scheffer and Delaroche. His first picture, a "Portrait of the Artist," was exhibited at the Salon of 1841. His paintings, during the next twenty years, were mainly religious in character. The most notable of this period are "Fra Angelico of Fiesole" (1842); "Charity" (1845); "The Jew of Tangiers" (1857); and the "Presentation of the Virgin" (1859; now in the Luxembourg). During the sixties he made an extensive tour of the Orient, and his later pictures are largely depictive of Oriental scenes and life. He painted portraits of several distinguished people, among them Alfred de Musset, Admiral Baudin, and the Princess de Broglie. Many of his best pictures are in the United States.

LANDS, ARID. See **DRAINAGE; IRRIGATION**.

LANDS, PUBLIC. The total area of unappropriated and unreserved public lands June 30, 1908, was 754,895,000 acres, of which 528,204,000 acres had not been surveyed. Almost three-fourths of the unsurveyed area is in Alaska, while most of the remainder is in the States or Territories of Arizona, Montana, Nevada, New Mexico, Utah and Wyoming. The total area of land originally entered during the fiscal year 1908 was 19,090,365 acres, and the area upon which final proof was made was 8,068,044 acres. The notable events of the year were the prosecution of the land-fraud cases and the opening of a portion of the Rosebud Indian Reservation.

LAND-FRAUD CASES. In January, Judge Robert E. Lewis, of the United States District Court at Denver, quashed the indictments of a number of more or less prominent citizens of Colorado in cases arising under the Timber and Stone Act of 1878. The defendants were for the most part members of corporations that had acquired large tracts of timber land. The charge was that they had hired persons to make entries for quarter-sections of timber land, such persons to pay the government price for land thus entered, using therefor money to be supplied by the corporation, and thereafter to transfer title to the corporation. Judge Lewis held that the transfer of title to the corporation after the fulfilling of legal requirements was not proof that the preliminary application was not made in good faith. He also held that the conspiracy alleged to have been involved in the transactions ceased when the entryman turned the title over to the agent of the corporation, and that the subsequent transfer from the agent to his corporation was a mere detail. The practical effect of this last opinion of the Court was to prevent criminal prosecutions owing to the operation of the statute of limitations. The government appealed to the Su-

preme Court, which reversed the decision. See COLORADO.

The case against Frederick A. Hyde, John A. Benson, Joost H. Schneider, and Henry P. Dimond in the Supreme Court of the District of Columbia was terminated on June 23. These men were accused of conspiracy to obtain public lands by fraudulent entry. The laws admitting California and Oregon to the Union set aside certain sections for public school purposes. The States provided for the sale of these lands only on the purchaser's oath that the land was taken for his exclusive use and benefit. Then in 1897 Congress provided for the exchange of lands privately owned, but situated within national forest reserves, for public lands outside reserves, acre for acre. It thus became possible to make a profit by securing title to school lands within reserves and exchanging them for better land outside. Messrs. Hyde and Benson were convicted of hiring persons to make application, and to secure title with money furnished by them, such titles to be later transferred to them. They even went so far as to pay small sums for the use of names in making application; indeed, they even used fictitious names. Having found this system workable, Hyde and Benson, according to the evidence, bribed land-office employees both to enable them to dictate where new forest reserves should be located, and to expedite their business with the land office. Four employees were dismissed from that office for being in the pay of the conspirators. The operations of these plunderers extended to twenty States, about 250,000 acres of land being involved. The evidence showed that Hyde and his employee, Schneider, were the chief agents of the whole plot; hence, Benson and Dimond were acquitted. On Dec. 8, Hyde was sentenced to pay a fine of \$10,000 and to serve two years in the penitentiary at Moundsville, W. Va. This penalty was the severest possible. Schneider was sentenced to pay a fine of \$1000, and to serve fourteen months in prison. Both men appealed. The successful prosecution of this noted case saved millions to the United States, checked other plans for plundering the public domain, and strengthened the prosecuting power of the government.

ROSEBUD OPENING. A portion of the Rosebud Reservation was opened in October. An innovation in the method was the designation of four different places in Nebraska and South Dakota where affidavits of registration could be made out and mailed to Dallas, South Dakota, where the drawing was done. There were in all 114,769 registrations for the 4000 farms of 160 acres each comprised in the tract. The land was disposed of at \$6 per acre, on easy payments, though some of the best quarters were estimated by land agents to be worth from \$5000 to \$10,000. Registration continued from October 5 to 17, drawings being made October 19. There were large crowds at all registration points. The total expense of those who registered was estimated at much more than the value of the entire tract opened.

LANGUAGE. INTERNATIONAL. See INTERNATIONAL LANGUAGE.

LAOS. A French protectorate in Indo-China, embracing the states of Luang Parabang, Bassac, and Muong Sing. Area, about 98,400 square miles; population, estimated in 1906 at 346,487. Gold, tin, lead, and precious

stones are found, and concessions have been granted to several French mining companies. Teak logs from the forests are floated down the Mekong to Saigon. Rubber is obtained from wild creepers, principally met with in the forests of Upper Laos. The natives cultivate rice, cotton, indigo, tobacco, and fruits. The country has not yet been opened up for commercial and industrial purposes. The Mekong is the main artery of traffic. The imports and exports are included in those of French Indo-China (q. v.). The king is assisted by the French Superior Resident at Vientiane. The local budget for 1908 balanced at 1,018,000 francs.

LAPPARENT, ALBERT AUGUSTE COCHON DE. A French geologist, died on May 10, 1908. He was born in Bourges, on December 30, 1839, was educated at the Polytechnique (1858-60), and at the École des Mines. In 1875 he became professor of geology and mineralogy at the Catholic Institute of Paris. He was also appointed to a chair of mineralogy, geology and physical geography in the École Libre des Hautes Études. In 1874, as secretary of the Channel Submarine Tunnel Committee, he made soundings and studies of the sea bottom of the English Channel, which have been much used in all subsequent channel tunnel projects. To geology his greatest contribution was his *Traité de géologie*, first published in 1881 in a single volume, but thereafter improved and enlarged until, in 1906, the fifth edition comprised three volumes, and including a series of maps illustrating tentatively the geographical features of various regions in successive geological ages. Lapparent was elected perpetual secretary of the Academy of Sciences, in 1907, as the successor of Pierre Eugène Marcellin Berthelot, the chemist. In addition to the *Traité de géologie*, he published: *Cours de minéralogie* (1884 and afterwards); *Les tremblements de terre* (1887); *La géologie en chemin de fer* (1888), and *Le siècle du fer* (1890).

L'ARRONGE, ADOLF. A German dramatist and theatrical manager, died on May 25, 1908. He was born at Hamburg, in 1838, studied music at the Leipzig Conservatory, and became conductor of an orchestra in Cologne, in 1860. From 1866 to 1869 he was a bandmaster at Berlin. He managed a theatre in Breslau from 1874 to 1878. About this time he began writing comedies, illustrative of life in the lower middle classes, which were immensely successful. The best of these are *My Leopold*, *Dr. Klaus*, *Hasemann's Daughters*, and *Charitable Women*. He was one of the founders of the Deutsches Theatre in Berlin, in 1883, and managed it until 1891, producing several of his own plays. He wrote *A History of the German Theatre and German Acting* (1896).

LATIMER, ASBURY CHURCHWELL. United States senator from South Carolina, died on February 20, 1908. He was born near Lowndesville, Abbeville County, S. C., on July 31, 1851, and was brought up on his father's farm and had a public school education. He took an active part in the campaigns of 1890 and 1892, in which year he was elected to Congress, where he served until 1903, when he took his seat in the Senate, as the successor of John L. McLaurin. As a member of the Manufactures Committee he had an important part in drafting the Pure Food Law; and he

also had to do with the framing of the pending copyright bill. As a member of the Immigration Committee he visited Europe in 1907, and had in the course of preparation an elaborate report dealing with immigration in the countries he visited. He served efficiently at different times on the committees on Agriculture, Immigration, Manufactures, Public Buildings and Grounds, and Census.

LAWN TENNIS. The season of 1908 again emphasized the fact that there are but few really first-class lawn tennis players in the United States. The best showing in the tournaments of 1908 was made by W. A. Larned of Summit, N. J., and B. C. Wright of Boston in the singles and by H. H. Hackett and F. B. Alexander and W. A. Larned and W. J. Clothier in the doubles. At the all-comers national championships tournament, held at Newport, August 18-28, there were 145 entries. In the singles finals B. C. Wright defeated F. B. Alexander 6-3, 6-3, 6-3, but in the challenge round W. A. Larned defeated Wright 6-1, 6-2, 8-6. The doubles were won by H. H. Hackett and F. B. Alexander, who defeated B. C. Wright and R. D. Little 6-1, 7-5, 6-0. In the women's national championship tournament at Philadelphia, June 23-27, Mrs. Barger-Wallach, New York, defeated Miss Evelyn Sears, Boston, in the challenge round 6-2, 1-6, 6-3. Miss M. Curtis and Miss Evelyn Sears, Boston, won the championship in doubles, defeating Miss C. Neeley and Miss M. Stover, Chicago, 6-3, 5-7, 9-7. The international tournament at Boston, September 17-19, was to decide as to whether an American or an English team was to contend with the Australian team in the Davis international challenge cup tournament, to be held at Melbourne, Australia. The results of the trials at Boston were: J. G. Ritchie, London, the winner of the gold medal at the Olympic games, defeated B. C. Wright, Boston, 6-1, 6-3, 6-2; W. A. Larned, Summit, N. J., defeated J. G. Parke, Dublin, 6-3, 6-3, 7-5; Wright defeated Parke, 8-10, 3-6, 6-4, 7-5, 6-2; Larned defeated Ritchie 4-6, 6-3, 6-2, 6-3. In the doubles, H. H. Hackett and F. B. Alexander, N. Y., defeated Parke and Ritchie, 6-3, 2-6, 7-5, 6-1. B. C. Wright and F. B. Alexander, of the winning team, were selected to represent the United States in the Melbourne tournament. The results of this tournament, which was held on November 27, 28 and 30, were: B. C. Wright (U. S.) defeated A. F. Wilding (Australia) 3-6, 7-5, 6-3, 6-1; N. E. Brookes (Australia) defeated F. B. Alexander (U. S.) 5-7, 9-7, 6-2, 4-6, 6-3; A. F. Wilding (Australia) defeated F. B. Alexander (U. S.) 6-3, 6-4, 6-1; B. C. Wright (U. S.) defeated N. E. Brookes (Australia) 0-6, 3-6, 7-5, 6-2, 12-10; (doubles) Brookes and Wilding (Australia) defeated Alexander and Wright (U. S.) 6-4, 6-2, 5-7, 1-6, 6-4. Australia won the tournament with two victories in the singles and one in the doubles, as against the United States' score of two victories in the singles. The national indoor championship tournament was held at New York, February 23-29, the championship in men's singles being won by W. C. Grant of the New York Tennis Club, who defeated G. F. Touchard in the finals, 6-2, 6-8, 6-3, 6-4. F. B. Alexander and H. H. Hackett won the championship in men's doubles, defeating W. B. Leragin, Jr., and M. S. Char-

lock, 6-3, 6-1, 6-4. In the women's singles Miss Marie Wagner, New York, defeated Mrs. F. Schmitz, London, 6-3, 6-2. The women's doubles were won by Mrs. W. H. Pouch and Miss E. H. Moore. The intercollegiate championship in singles was won by N. W. Miles, Harvard, who defeated A. S. Dabney, also of Harvard, in the finals, 7-5, 6-1, 3-6, 6-2. Tilden and Thayer of the University of Pennsylvania won the championship in doubles, defeating Holden and Bundy of Yale, 6-2, 5-7, 8-6, 5-7, 6-6, 6-4, 11-9, 6-4. In dual college tournaments Princeton defeated Columbia, 5 matches to 4; Yale defeated Princeton, 8 to 1; Harvard defeated Yale, 5 to 4. Other tournaments of the year and their winners were: All-England, men's singles, A. W. Gore; women's singles, Mrs. Sterry; Olympic, men's singles, J. G. Ritchie; women's singles, Mrs. Lambert Chambers; Middle States, men's singles, E. P. Larned (by default); men's doubles, W. A. Larned and G. L. Wrenn; women's singles, Miss C. B. Neeley (by forfeit); women's doubles, Mrs. A. H. McCarthy and Miss Johnson; Pacific Coast, men's singles, M. Long; men's doubles, M. McLoughlin and G. Janes; women's singles, Miss Mary Sutton; international (Niagara, Ont.), men's singles, N. W. Niles; women's singles, Miss Marie Wagner.

LEAD. The production of primary refined lead, desilverized and soft, from domestic and foreign ores in the United States during 1908, according to estimates of the United States Geological Survey, was approximately 391,000 short tons, worth at the average price \$32,844,000 as compared to a production of 418,189 tons in 1907 and 404,746 tons in 1906. These figures were exclusive of an estimated output of 12,000 tons of antimonial lead, as against 9,910 tons in 1907. Of the total production, desilverized lead comprised 287,500 tons, as against 314,241 tons in 1907. The soft-lead production increased to 103,500 tons, compared to 99,948 tons in 1907. The increased output of soft lead accompanying a decrease in desilverized lead indicated that Missouri retained the first place among lead-producing States, as its southeastern and Joplin districts are the largest sources of production, though the Cœur d'Alene district of Idaho, and Leadville, Col., where the lead is produced by treatment of argentiferous ores, join with it to make up nearly 80 per cent. of the United States production.

There was 50 per cent. increase in the imports of lead in ore and base bullion, which amounted to 105,000 tons, valued at \$4,180,000, as compared to 70,538 tons in 1907. From this it was inferred that the production of desilverized lead of foreign origin increased considerably over that of 1907, which was 67,423 tons. The imports of refined lead fell off considerably, being 3,000 tons, with a value of \$200,000, against 9,277 tons in 1907. The exports of foreign lead (lead of foreign origin smelted or refined in the United States) show an increase of nearly 50 per cent., being 75,000 tons, valued at \$3,024,000, compared to 61,424 tons in 1907. The exports of lead manufacturers remained practically stationary, with a value of about \$600,000.

The price of lead started in January with a minimum of 3.625 cents per pound, rising to the maximum figure of 4.60 cents per pound

in August, then declining slowly to the close of the year. The average New York price for the year was 4.2 cents per pound.

The statistics of production as given by the *Mineral Industry* and the *Engineering and Mining Journal* are presented in Table I.

TABLE I.—PRODUCTION OF LEAD IN THE UNITED STATES, 1904-1908

	1904	1905	1906	1907	1908
	short tons	short tons	short tons	short tons	short tons
Domestic	200,858	205,665	220,095	213,383	182,401
Desilverized	.....	81,299	100,492	108,518	110,059
Soft) S. E. Missouri	90,470	21,324	16,528	17,833	17,890
) S. W. Missouri	10,876	8,456	7,434	9,614	12,491
Antimonial	.....	3,000	980	790	1,000
Miscellaneous	.....	.....	.....	.....	.....
Total	302,204	319,744	345,529	350,130	323,841
Imports, ore and bullion	112,852	86,234	84,134	79,815	*97,092
Production and Imports	415,056	405,978	432,349	429,945	.....
Exports in all forms	84,142	59,741	47,323	51,502	*67,924

* 11 mos. ending Nov. 30.

TABLE II.—PRODUCTION OF LEAD IN PRINCIPAL COUNTRIES OF THE WORLD, 1903-1907

	1903	1904	1905	1906	1907
Australasia	141,446	118,979	104,636	93,000	97,000
Austria	12,162	12,645	12,968	14,846	15,400
Belgium	22,263	23,470	22,885	23,765	25,800
Canada	9,070	19,000	25,650	24,560	21,571
Chili	71	50	50	50	.....
France	23,332	18,288	24,148	25,600	23,000
Germany	145,319	137,580	152,590	150,741	142,571
Greece	16,093	14,320	10,447	12,308	13,800
Hungary	2,057	2,103	2,100	1,925	(a)
Italy	22,126	23,475	19,077	21,268	22,900
Japan	1,728	1,700	2,255	4,000	3,500
Mexico	94,181	103,000	87,393	66,610	72,000
Russia	225	225	700	907	100
Spain	175,109	185,862	185,693	185,470	185,800
Sweden	678	589	576	600	700
United Kingdom	14,900	6,888	5,000	4,000	4,000
United States	19,958	19,838	22,693	22,693	20,000
United States	250,992	274,132	292,519	315,830	317,568
Total	951,710	962,144	967,972	968,174	964,910

a Included with Austria.

LEATHER. This industry in 1908 was marked by an attempt at recovery from the panic conditions and prices of 1907 and naturally the year was one of more or less depression. Hides were at their lowest value in January and at their highest in December, so that the gradual recovery indicated wholesome progress. The average for Chicago packer hides for 1908 was \$11.583, with the highest price in December, \$13.797, and the lowest, \$9.417, in January. The average price in 1907 was \$12.744, and in 1906, \$13.964. For Chicago country hides the average for 1908 was \$9.63, with the high point \$12.45 in December and the low, \$7.801 in January. The average price in 1907 was \$11.135, and in 1906, \$13.352. During the year there was the greatest interest in the proposed revision of the tariff, but no substantial unanimity of opinion on the part of the various interests concerned. There was, however, more of a demand for free hides than at any previous time, and it seemed that manufacturers were in favor of a reduction or removal of the duty.

LECIBRIN. A preparation of lecithin from the brain of animals, combined with nucleoproteins, containing 33 1-3 per cent. by weight of lecithin, upon which preparation it is designed as an improvement. It is indicated in functional nervous troubles arising from defective elimination, and its good effects are probably due to the phosphorus contained in it.

LECOT, VICTOR LUCIEN SULPICE. CARDINAL. A Roman Catholic cleric, died on December 20, 1908. He was born at Montescourt, on January 8, 1831, was appointed bishop of Dijon in 1886, archbishop of Bordeaux in 1890, and was created a cardinal on January 16, 1893. Although Cardinal Lecot unsparingly condemned the church separation law, he advocated a conciliatory policy, and led the faction which attempted to make that attitude the formal one of the church toward the State. He urged the Pope to sanction the organization of religious associations, and formed in his own diocese an association, under the terms of the new law, the scheme of which would have enabled the church

to meet the situation creating canonical privileges. He was generally in sympathy with M. Briand's endeavors to establish a *modus vivendi* which could be accepted by the church. By his death the number of French cardinals was reduced to three—Mgrs. Coullié Archbishop of Lyons; Lucon, Archbishop of Reims, and Andrien, Bishop of Marseilles.

LEE, LESLIE ALEXANDER. An American biologist, died on May 20, 1908. He was born in Woodstock, Vt., on September 24, 1852, graduated at St. Lawrence University in 1872, did graduate work at Harvard in 1874, and took his Ph. D. in 1885. In 1876 he became professor of biology and geology at Bowdoin, and he held his chair during the remainder of his life. In 1887 he was chief of the scientific staff of the United States Fish Commission on the expedition in the steamer *Alabama* through the Straits of Magellan, during which much biological, geological, and ethnological matter was collected for the Smithsonian Institution. Many reports of this expedition were published by the United States National Museum. He was also director in 1891 of the Bowdoin College expedition to Labrador which made valuable collections in that region, and rediscovered Grand Falls, in the Grand (or Hamilton) River, about 250 miles west by south of Hamilton Inlet.

LEE, STEPHEN DILL. An American Confederate soldier, died at Vicksburg, Miss., on May 28, 1908. He was born at Charleston, S. C., on September 22, 1833, graduated at the United States Military Academy at West Point in 1854, and served in the Fourth Artillery until his resignation in 1861. He saw service against the Seminoles in 1856-7 and in the troubles in Kansas. Entering the Confederate Army as a captain he served in the Army of Northern Virginia until after Antietam when he was transferred to the West with the rank of brigadier-general. He distinguished himself during the siege of Vicksburg, became a prisoner on its surrender, and when exchanged became a major-general. At the close of the war he commanded a corps of the Army of Tennessee with the rank of lieutenant general. He became a planter in Mississippi after the war, served in the State Legislature, was president of the Mississippi Agricultural and Mechanical College from 1880 to 1889, and in 1890 was a member of the State Constitutional Convention. He had been president of the United Confederate Veteran Association since 1904, and Superintendent of the Vicksburg National Military Park from 1899.

LEEWARD ISLANDS. A British colony in the West Indies, comprising the Presidencies of Antigua (q. v.), St. Kitts (q. v.), Dominica (q. v.), Montserrat (q. v.), and Virgin Islands (q. v.). Total area, 702 square miles; population, 134,000. For the products, commerce, etc., of the various subdivisions, see under the respective titles. The total imports and exports in 1907-8 were valued at £517,424 and £521,509, respectively. The trade is chiefly with Great Britain, the United States, and Canada. The export of sugar in 1907 was 28,419 tons, of which 13,972 came from Antigua and 14,132 from St. Kitts. The cotton export in the year ending March 31, 1908, was 934,266 pounds. The revenue in 1907-8 was £151,520;

the expenditure, £134,273; and the public debt, £273,850. The Governor in 1908 was Sir B. S. Escott. His seat is on Antigua.

LEHIGH UNIVERSITY. An institution of higher learning at South Bethlehem, Pa., founded in 1866. In 1908 there were 681 students in the university, divided as follows: Arts and sciences, 35; civil engineering, 199; mechanical engineering, 139; mining engineering, 106; electrical engineering, 142; metallurgical electrical engineering, 142; metallurgical engineering, 9; electro metallurgy, 14; chemistry, 16; chemical engineering, 21. Its students represent 26 States and 10 foreign countries. The university has a teaching force of 64. In September, 1908, the Conference Department, composed of certain professors and instructors of the departments of Mathematics, Physics, Chemistry, and Modern Languages, was established to aid students who find any difficulty with their current work. This is an innovation in college policy and since its establishment the department has been greatly beneficial to students who find any difficulty with their work. The funded endowment of the university is \$1,178,000, yielding an annual income of \$55,530. The total income of the university from all sources is about \$180,000.

LELAND STANFORD, JR., UNIVERSITY. An institution of higher learning at Palo Alto, California, founded in 1887. The registration of students on October 1, 1908, was 1518. The total attendance for 1907-8 was 1751. The university has completed restoration of all its working buildings injured in the earthquake of April, 1906. It has begun also the restoration of the Memorial Church, which was badly wrecked at that time. During 1907-8 the attention of the faculty has been directed toward the question of entrance requirements. President Jordan has advocated the division into university and junior college work, the freshman and sophomore years being cut off. In 1908 the university acquired the building and property of the Cooper Medical College of San Francisco, which forms the nucleus of a medical department, instruction to begin in 1909. The absence of the new gymnasium has necessitated the development of outdoor athletics. The library contains 97,775 volumes. The faculty numbers 138; the productive fund is \$24,525,922; and the income is \$854,812. David Starr Jordan is president.

LEMOINE'S DIAMOND PROCESS. See ARTIFICIAL GEMS.

LE PLONGEON, AUGUSTUS. A well known archaeologist, died on December 13, 1908. He was born on the Isle of Jersey, in 1826, the son of a commodore in the French Navy, who was a descendant of De Toqueville. He was educated in France, studied medicine, and for several years practised in South America. His interest in the early history of that continent induced him to make a careful study of the Peruvian people, and his books, *Queen Nino and the Egyptian Sphynx* and *Sacred Mysteries among the Mayas and the Quiches*, are considered standard works on the Peruvians.

LEPROSY. The search for a specific treatment of this disease continued in 1908. Deyeke isolated a characteristic organism which he termed *Straptothrix leproides*. From this organism he extracted with ether a genuine neu-

tral fat which he called "nastin." The injection of this substance into lepers gave rise to a reaction resembling that of tuberculosis patients to tuberculin (q. v.). By combining nastin with benzoyl chlorid its activity was remarkably increased. The resulting solution appeared to act on the lepra bacilli, nastin enabling the benzoyl to deprive the bacilli of their fat and thus destroy them. A trial of the nastin treatment was made on a leper at the Kalihi Receiving Station, Hawaii. All clinical symptoms disappeared, and the bacilli were still present were gathered in bunches instead of being widely distributed. The conclusion must be that while the remedy has a distinct effect, no positive cure can as yet be shown. The X-rays and high-frequency currents were used to some extent upon the superficial lesions of leprosy with, according to Matthews of Calcutta, decided benefit. The Louisiana Leper Home reported one leper discharged cured and five others practically well, but still under observation.

RAT LEPROSY. The campaign against rats on account of the plague (q. v.) brought to light a leprosy-like disease among these rodents, in the proportion of 1 to 614 examined. Passed Assist. Surgeon McCoy, who makes the report in the *Public Health Reports*, believed the disease even more prevalent. The skin lesions and alopecia resembled those of human leprosy very closely, and the bacilli found in the ulcers and glands were morphologically indistinguishable from the lepra bacillus of Hansen. In the opinion of Brinckerhoff the geographical distribution of the disease indicates that it is not identical with human leprosy, but it is probably related to it in some such way as bovine is to human tuberculosis (q. v.).

LEYDIG, FRANZ VON. A German zoölogist, died on May 13, 1908. He was born in Rothenburg-on-the-Tauber, on May 21, 1821, studied medicine at Marzburg and Munich, became professor at Tübingen in 1857 and at Bonn in 1875, and retired in 1895. He published several important works on comparative histology and anatomy, such as *Anatomisch-histologische Untersuchungen über Fische und Reptilien* (1853); *Der Eierstock und die Samertasche der Insekten* (1866); *Die augenähnlichen Organe der Fische*, on a supposed sixth sense in fishes; *Zelle und Cecebe* (1885); *Zur Kenntnis der Zirbal und der Parietalorgane* (1896), and *Horae Zoological Zur vaterländischen Naturkunde* (1902).

LIBERIA. A negro republic on the west coast of Africa. Area 35,000 square miles; population, about 1,500,000, about 12,000 being of American origin. Monrovia, the capital, has about 5,000 inhabitants. Only the coast strip is administered. The principal export articles are coffee, palm-oil, palm-nuts, rubber and ivory. The rubber trade is said to possess great possibilities, but hitherto the disturbed state of the interior, absence of roads, and the difficulty of obtaining labor have checked its development. In 1906 imports and exports were valued, respectively, at \$766,526 and \$777,507. During the year ending June 30, 1908, the United States imported from Liberia goods to the value of \$45,578, and exported to it \$58,432 worth. British influence is extending. In 1905 the Liberian Development Company, a British corporation, advanced £100,000 to the government for es-

tablishing a bank, constructing roads, raising a force of native constabulary under the command of a British officer, and installing telegraphic communication. Two British officials have been charged with the task of reorganizing the customs service and the general financial affairs of the country. The new bank, entitled the Government Bank of Liberia, has already been established under the management of the company officials; it is entrusted with the function of receiving all customs duties on behalf of the government. The executive power is vested in a president, elected for four years, in accordance with a recent amendment to the Constitution. In 1908 the president was Arthur Barclay, reelected in 1907. The legislative power is vested in a Senate, the members of which are elected for six years, and a House of Representatives, the members of which are elected for two years. The revenue and expenditure in 1906 amounted to \$357,433 and \$340,036, respectively. The foreign debt in 1907 stood at about \$170,000; the internal debt, at \$300,000. Military service is obligatory on every able-bodied citizen between the ages of 16 and 50 years. The number of organized militia volunteers and police was about 700 in 1908.

HISTORY. In 1907 a treaty was concluded between France and Liberia and under its terms a boundary commission was sent out by France, which reached Fassariguni on November 15. It reported that it was making its way with difficulty on account of the density of the jungle and the hostility of the natives, and that in an encounter with the latter it had lost the physician to the expedition. Envoys were sent from Liberia to Europe and the United States in 1908 to solicit aid and sympathy for the republic. The deputation to the United States appealed to the Secretary of State on May 26. Reference was made to the encroachment on Liberian territory by adjoining countries. The need of white assistance in the introduction of governmental reforms, especially in the finances, was urged. Investigation by the American Department of State showed that the difficulties of the Liberian government might be described as amounting to a general breakdown. As Secretary Root summed up the situation, between forty and fifty thousand civilized negroes, for the most part descendants of the original colonists from the United States, occupy a territory comprising 43,000 square miles, in which there are also over a million and a half members of uncivilized native tribes. The civilized part of the population have been to a great degree cut off from any intimate relation with the rest of the civilized world for two-thirds of a century. They began with little education, with no acquired skill in the art of government, and they have had little opportunity to improve through intercourse with other and more advanced communities. They find it especially difficult to control the native tribes, or to conduct their own government in accordance with modern requirements. The British colony of Sierra Leone to the north and the French possessions closing in their hinterland to the east are almost continuously complaining of the failure of Liberia to maintain order upon the border. "Notwithstanding the very kindly disposition on the part of Great Britain, and the similar disposition on the part of France, there is imminent danger that the re-

public, unless it receives outside assistance, will not be able to maintain itself very long," said Mr. Root.

LIBRARY ASSOCIATION, AMERICAN. A society organized to develop the public library in its bearing on American education and by coöperation to increase the efficiency of library administration, established at Philadelphia in 1876 and incorporated under the laws of Massachusetts in 1879. The 30th annual meeting was held at Lake Minnetonka, Minnesota, on June 22-29, 1908. There was an attendance of 658. Aside from the regular committee reports, the principal topics discussed were: The Librarian as a Censor; More Recent and Standard Books; Library Training, and Open Shelves and Book Losses. The official organ of the association is the *Bulletin of the American Library Association*, in which are published the proceedings of the annual meetings. The association has been instrumental in establishing library organizations in 38 States, besides many local library clubs in cities and districts. Four sections are maintained, cataloguing, library work with children, college and reference, and trustees. The association has affiliated with it the three following national organizations of kindred purpose: the National Association of State Libraries, the League of Library Commissions, and the American Association of Law Libraries. These hold separate sessions at the same time and place, with the annual meeting of the larger body, and each prepares a programme, arranged by its own officers. The most important activity of the association is the publishing board which operates under the gift of \$100,000 made in 1902 by Andrew Carnegie. The income of this fund is used in the preparation of indexes, of bibliographies, reference helps, and literature for promoting library extension and the selection of books. It published in 1902 an important bibliography of American history. In 1904 it prepared the A. L. A. Catalog, a Guide to Classification, Cataloguing and Book Selection, published by the Library of Congress and first distributed by the International Library Conference, held in connection with the Louisiana Purchase Exposition. In 1906 the Library of Congress published an extensive index to 120,000 portraits upon which the publishing board had been at work for over ten years. The officers for 1908-9 are as follows: President, C. H. Gould, McGill University; First Vice-President, N. D. C. Hodges, Cincinnati Public Library; Second Vice-President, Mrs. H. L. Elmhendorf, Buffalo Public Library; Treasurer, Purd B. Wright, St. Joseph, Mo., Public Library; Recorder, Alice B. Kroeger, Drexel Institute Library, Philadelphia. The Secretary and executive officer of the Association is J. I. Wyer, New York State Library.

LIBRARY OF CONGRESS. A public and national institution, founded at Washington, D. C., in 1800. In 1908 the library contained 1,535,008 books, 105,118 maps and charts, 483,411 volumes and pieces of music, 279,567 prints. The acquisitions of the year numbered 100,067 printed books and pamphlets. Only one collection of importance in any department of literature was acquired during the year. This was the Huitfeldt-Kaas collection of Scandinavian literature, which was the private library of Henrik Jørgen Huitfeldt-Kaas, the late State Arch-

ivist of Norway. The collection contains first editions of all the works of Ibsen, Bjørnsen and Jonas Lie, now very difficult to obtain. It also includes many valuable editions of the works of other leading masters of Denmark and Norway during the 15th century, and is rich in Scandinavian biography, genealogy, local and theatrical history. In the early laws of Norway the collection includes some works which are found in only a few libraries in Europe, and probably in no other library of the United States. Among the important acquisitions of manuscripts received by the library during the year were the papers of Harry Innes, a distinguished personage in Kentucky affairs in the early part of the 19th century. There were received also the papers of the firm of Riggs & Co., and Corcoran and Riggs, a mercantile and banking house of long standing in Washington. In the division of manuscripts, the calendar of the military papers of Washington progressed steadily and without interruption during the year. It is probable that one more year will be required for this work. The calendar of papers relating to New Mexico also progressed, and has reached the year 1791. The additions to the Journals of the Continental Congress continued without interruption on the plan originally laid down in 1903. In the fiscal year 1908, three volumes, 10, 11 and 12, covering the record for 1778, were printed. During the fiscal year 43,680 acquisitions were made in the Department of Documents, which are chiefly reports and papers relating to foreign countries. In the Department of Music, a notable gift was received in a volume containing several characteristic autograph scores of the late John Knowles Paine, containing his unfinished tone-poem, Lincoln. The number of visitors and users of the library in the fiscal year were 938,129. Appropriations made for the support of the library in 1907-8 amounted to \$670,405.08, of which there was expended \$668,588.88. The librarian is Herbert Putnam.

LIE, JONAS LAURITZ EDEMIL. A Norwegian novelist and poet, died on July 6, 1908. He was born near Drammen, Norway, on November 6, 1833. He entered the naval academy at Fredrikvoern in 1846, but being unfitted for a naval career on account of near-sightedness, was transferred to the Bergen Latin School. In 1851 he entered the University of Christiania, where Bjørnsen and Ibsen were his fellow-students. After taking his degree in law, he began to practice in Kongsvinger. In 1866 he published a collection of poems, which attracted considerable attention. An unfortunate business speculation having consumed his entire capital, he moved to Christiania, where he tried teaching journalism and literature. His efforts in the last-named vocation were crowned with success by the appearance, in 1870, of *The Visionary*, a romance, which made him famous throughout Norway. This was followed by *The Bark "Future,"* in 1873, and *The Pilot and His Wife*, in 1874. Lie was now the acknowledged head of Norwegian novelists. The government awarded him a travelling stipend, and he moved to Germany. Here he wrote, among other novels, *Rutland* (1881), and *Go Ahead* (1882). In 1882 he moved to Paris, where he wrote *A Maelstrom* (1884), *The Commodore's Daughter* (1886), *Married Life* (1887), and several other novels, besides a collection of 24 folk-tales under the

title of *Troid* (2 vols., 1891-92). In 1893 he returned to Norway, and settled near Christiansand, where he continued to live for the remainder of his life. His later important novels are *Niobe* (1893), *When the Curtain Falls* (1901), and *Ulfounger* (1904). He was passionately fond of the sea, and few writers have excelled him in describing a sailor's life and surroundings. His novels have been translated into several languages. Upon his death, the Norwegian government accorded him a state funeral.

LIEBREICH, OSKAR: A German pharmacologist, died on July 2, 1908. He was born in Königsberg, on February 14, 1839, studied chemistry under Fresenius in Wiesbaden, and in 1857 embarked on a two years' cruise to Africa and other distant countries, his intention at that time being to enter the navy. But he abandoned this idea, studied medicine in Königsberg, Tübingen and Berlin, and became assistant to Virchow in the last-mentioned university in 1867, professor of therapeutics in 1868, and director of the pharmacological institute in 1872. This position he held until 1908, when advancing arterio-sclerosis affected his brain, and he was forced to retire. In 1872 he discovered the narcotic action of chloral hydrate; this had been produced and described by Liebig in 1832, but it had remained for Liebreich to make practical use of it. Among his other important achievements were the discovery of butylchloral and ethyl chlorid, the "determination that protagon is the principal phosphorus-containing constituent of the brain (an observation which Liebreich made when a student), the introduction of hydrargyrum formamidatum, and especially that of lanolin," and his chemical studies of food-stuffs and investigation of balneotherapy. Liebreich edited the *Therapeutische Monatshefte* (1887 sqq.) and the *Encyklopädie der Therapie* (1895 sqq.), and with Langgaard prepared the widely-used *Kompendium der Arzneiverordnung* (5th ed., 1902).

LIFE INSURANCE. See **INSURANCE.**

LIGHT. See **PHYSICS.**

LIGHTHOUSES. During the year 1908 there were no lighthouses of large size or novel construction built or building in the United States. The Lighthouse Board, however, was carefully considering various types of illuminants, and it seemed that greater economy and efficiency over the oil lamps so extensively used could be effected. With a number of first order lights, as well as with smaller lights incandescent oil vapor has been used with some success. The plant at each station consists of a high-pressure air tank with reducing valve attached and gauge, an oil and air tank connecting with the lamp, tubing through which is forced oil vapor from the tank to the burner, a spirit lamp for the initial heating of the oil to the vapor point, after which it is heated by the flame of the mantle and burner. The lamp itself comprises the vaporizer, Bunsen burner and mantle. It was found in the tests made in 1907 and 1908 that the incandescent oil vapor and mantle required more constant watching than the oil lights, although there seemed to be opportunity for improvement in mechanism and use, while the increase in candle power was marked, as, for example, in the first order 5-wick fixed lamps, Block Island, Southeast, and

Shinnecock Bay, the light which formerly gave 12,188 C. P. was increased to 45,690 C. P. A fourth order 4-panel flashing light at Point Judith was increased from 6,000 C. P. to 75,048 C. P. and similar gains were obtained at other stations. The efficiency, considering the cost of oil only, is considerably in favor of the new vapor lamps, but this is offset by the cost of mantles and the alcohol to start the light. The Lighthouse Board also carried on experiments with acetylene in acetone for lighthouse illumination at a number of stations.

There were in 1908 under the control of the United States Lighthouse Establishment the following named aids to navigation:

Lighthouses and beacon lights	1,681
Light vessels in position	51
Light vessels for relief,	12
Fog signals	506
Gas-lighted buoys in position	162
Post lights, about	1,890
Day or unlighted beacons	1,063
Buoys in position, including stakes and buoys in Porto Rican, Hawaiian, and Alaskan waters	5,810

In the construction, care, and maintenance of these aids to navigation, there were employed:

Submarine signals	42
Steam tenders	44
Steam launches	3
Light keepers, about	1,631
Officers and crews of light vessels and tenders, about	1,699
Laborers in charge of post lights, about	1,514
Laborers and mechanics under lighthouse engineers, about	395

There were some 115 lights discontinued during the fiscal year 1908, mostly small inexpensive lights.

The following appropriations were made for the support of the Lighthouse Establishment for the fiscal year ending June 30, 1909:

Supplies of lighthouses	\$700,000.00
Repairs and incidental expenses of lighthouses	950,000.00
Salaries of keepers of lighthouses ..	1,160,000.00
Expenses of light vessels	925,000.00
Expenses of buoyage	900,000.00
Expenses of fog signals	250,000.00
Lighting of rivers	375,000.00
Survey of lighthouse sites	1,000.00
Oil houses for light stations	10,000.00
Maintenance of lights—on channels of Great Lakes	4,000.00
Point au Pelee light vessel, Lake Erie ..	4,000.00
New tenders and light vessels, new light stations and repairs and miscellaneous public works under the control of the Lighthouse Establishment	893,650.00
Total	\$6,172,650.00

The Lighthouse Board of the United States, which is under the jurisdiction of the Department of Commerce and Labor, on June 30, 1908 consisted of the following members as provided by law: Hon. Oscar S. Straus, Secretary of Commerce and Labor, ex-officio president; Capt. Adolph Marix, U. S. Navy, chairman; Col. Walter S. Franklin; Dr. Henry S. Pritchett; Lieut. Col. Harry F. Hodges, Corps of Engineers, U. S. Army; Capt. S. P. Comly, U. S. Navy; Capt. James M. Helm, U. S. Navy, naval secretary; Lieut. Col. Thomas L. Casey, Corps of Engineers, U. S. Army, engineer secretary. The executive members of the Board were: Capt. Adolph Marix, U. S. Navy; Capt. J. M. Helm, U. S.

Navy; Lieut. Col. Thomas L. Casey, Corps of Engineers, U. S. Army.

LILLEY, GEORGE LEAVENS. An American politician, Governor-elect of Connecticut. He was born at Oxford, Mass., on August 3, 1859, and was educated in the public schools and at the Worcester Polytechnic Institute. In 1901 he was elected to the Connecticut State Legislature, and in the following year was chosen representative-at-large to Congress, having been reelected in 1904 and 1906. During the first session of the Sixtieth Congress he made accusations of graft and corruption in connection with the letting of submarine boat contracts, and introduced a resolution calling for a committee of investigation. The committee appointed, after having held several hearings, reported that Mr. Lilley's charges were unfounded and also took occasion bitterly to arraign him for his action in the matter. In September, 1908, he was nominated for Governor by the Republican State Convention, despite the opposition of many of the party leaders, and in November was elected to that office by a plurality of 15,919. That he did not command the full support of his party is indicated by the plurality given Mr. Taft, which was nearly 45,000. In December, 1908, action was brought against Mr. Lilley for failing to observe the Corrupt Practices Act, which had been passed by the Legislature in 1904, the complaint specifying that the expenditures made in the conduct of his campaign were contrary to the law. See CONNECTICUT and UNITED STATES, Section Navy.

LINCOLN MEMORIAL HIGHWAY. The Lincoln memorial highway, leading from the city of Washington to Gettysburg, a distance of 72 miles, was proposed in 1908 in commemoration of President Lincoln. It was the purpose to make the road 150 feet wide, with two 50-foot roads, and space for an electric line of 50 feet as well. The cost was estimated at \$7,000,000.

LINDSEY, BENJAMIN BARR. An American jurist, judge of the County Court and Juvenile Court at Denver, was born in Jackson, Tenn., on November 25th, 1869. His family was impoverished by the Civil War and removed to Denver, where the father died. To help support the family he sold papers in the morning, worked as an office boy in a lawyer's office during the day and as janitor in the evening. He read law, and presently was admitted to the bar. He became judge of the County Court and Juvenile Court of Denver on January 1st, 1900, and since that time has been remarkably successful in his treatment of juvenile offenders. He organized the Little Citizens' League, composed of the boys of Denver, and was responsible for the enactment by the Colorado Legislature of a contributory delinquency law, under which parents and employers are held responsible for the neglect of children. He was unsuccessful as Democratic candidate for Governor in 1906, but his sweeping victory, over both the old party organizations, in November, 1908, was one of the most striking political events of the year. See PRESIDENTIAL CAMPAIGN, Results of the Election.

LINEVITCH, NICHOLAS PETROVITCH. A Russian general, commander-in-chief of the Russian forces in Manchuria in the war with Japan, died at Saint Petersburg on April 23d, 1908. He was

a native of Tcheringoff and entered the army at the age of seventeen, the time of the first Crimean War, and fought in the Caucasus against the Turks, and, later, against the Circassians. He won distinction at Khiva, while with General Skobelev's command, and in 1869 was made a captain. For his services during the war with Turkey (1877-78) he was rewarded with a Colonelcy and the Cross of Saint George. He served ten years in Transcaspiya as commander of a rifle brigade and in 1895 was transferred to the Far East, where, in 1900, he was put in command of the first Siberian Army Corps, taking charge of the campaign against the Boxers and of the expedition for the relief of the Peking legations. During the war with Japan he commanded the First Manchurian Army until after the battle of Mukden, when he superseded General Kuropatkin as commander-in-chief. While peace negotiations were being carried on he was engaged in drilling his army and succeeded in bringing it up to a high point of efficiency, for which he received the appointment of general aide-de-camp.

LIPPMANN, GABRIEL. A French physicist, who was awarded the Nobel Prize for Physics, in December, 1908. He was born in Hollerich, Luxembourg, on August 16th, 1845, studied at the Ecole Normale, in Paris, and then in Germany, where he specialized in physics. In 1875 he was awarded his doctor's degree for his remarkable thesis, *Relation entre les phénomènes électriques et capillaires*. He described the principle of the conservation of electricity, and in 1891 discovered a process for photographing in colors. He was appointed a professor of mathematics and physics in the University of Paris in 1883, and in 1886 took the chair of experimental physics there. In the latter year he was elected to the Academy of Sciences. His publications include *Cours de thermodynamique* (1888); *Cours d'acoustique* (1888), and other technical works.

LIQUORS, FERMENTED AND DISTILLED. These products should be classed under three general heads: (1) wines, products made by the fermentation of fruit juices; (2) malt liquors, fermented beverages made from grains or starchy material with the aid of malt; and (3) distilled liquors, prepared by the distillation of any fermented liquor.

WINES. During the year 1908 there was little of interest or importance in connection with wines. The following table shows the production of sweet wine and the amount of brandy used in its fortification during the past four years:

Year ended June 30	Tax gallon brandy used	Wine gallons wine fortified.	
		Before fortification	After fortification
1905.....	3,430,819	11,992,554	13,990,055
1906.....	3,123,748	10,325,317	12,077,573
1907.....	4,080,774	13,894,536	16,241,900
1908.....	4,380,016	14,601,975	17,119,261

These figures show a considerable increase in the production of both wine and brandy during the past year. Of the total production of 17,119,261 gallons, 16,591,168 gallons were produced in California, and practically the total increase in production was in that State, showing that

the sweet wine law is of practically no value to the other sweet wine producing States.

MALT LIQUORS. During the year 1908 official standards and definitions of malt liquors were adopted by the Association of Official Agricultural Chemists, which in brief are as follows:

1. *Malt liquor* is a beverage made by the alcoholic fermentation of an infusion in potable water, of barley malt and hops, with or without unmalted grains, decorticated and degerminated grains.

2. *Beer* is a malt liquor produced by bottom fermentation.

3. *Lager beer, stored beer*, is beer which has been stored in casks for a period of at least three months.

4. *Malted beer* is beer made of an infusion, in potable water, of barley malt and hops.

5. *Ale* is a malt liquor produced by top fermentation.

6. *Porter and Stout* are varieties of malt liquors made in part from highly roasted malt.

These definitions and standards were adopted after a lengthy hearing at which the manufacturers submitted their evidence, and it was believed that undoubtedly they would be of value, giving more definite meaning to the terms used by the trade. The production of fermented malt liquors during the year 1908 shows only a slight increase over the previous year, the total production being 58,747,680 barrels, as against 58,546,111 barrels in 1907.

DISTILLED SPIRITS. The statistics of the production of distilled spirits in the United States showed that there was a very considerable decrease in production during the year 1908 as compared with previous years. In 1908, 126,989,740.1 gallons were produced, as against 168,573,-

913 gallons in 1907, a decrease of 42,309,948 gallons. This decrease in production is distributed among the kinds of spirits as shown in the following table:

Decrease in	Tax gallons
Bourbon whisky	18,970,306.7
Rye whisky	9,962,328.1
Rum	126,485.4
Gin	190,934.9
High wines	74,873.0
High-proof, pure, neutral, or cologne spirits	9,867,031.1
Miscellaneous	3,117,988.8
Total decrease	42,309,948.0

This decrease in production, in the opinion of the Commissioner of Internal Revenue, was due to a number of causes, among them the extension of the prohibition movement, the very high price of grain, lack of demand for high-proof spirits, and an agreement between distillers to curtail production. There was also a decrease of tax-paid withdrawals during the year to the amount of 14,327,472 gallons, which was largely high-proof or neutral or cologne spirits. This decrease in withdrawals was believed by the Commissioner of Internal Revenue to be somewhat due to the prohibition movement, and also to the unsettled condition of the trade as to the proper marking and branding of certain products under the Food and Drugs Act, the trade waiting for a final decision on certain points.

The following table from the report of the Commissioner of Internal Revenue, 1908, shows the production of spirits of all kinds for the past five years, demonstrating what a marked decrease there has been in the production of all kinds of distilled spirits during the year 1908.

Fiscal year ended June 30	Distillery Warehouses									
	Special bonded warehouses	Fruit brandy (a)	Bourbon whisky	Rye whisky	Alcohol	Rum	Gin	High Wines	Pure, neutral or cologne spirits (b)	Miscellaneous
1904...	1,710,218.1	20,247,089.2	18,371,344.7	11,486,082.4	1,801,179.0	2,110,215.9	309,990.2	57,997,506.1	21,988,544.5	136,022,170.1
1905...	2,313,221.3	26,742,168.2	20,410,422.0	11,610,799.0	1,791,987.2	2,187,709.6	192,066.6	60,944,810.8	23,930,830.9	150,124,015.6
1906...	1,516,309.4	24,968,942.7	21,469,720.5	11,173,614.0	1,730,101.8	2,323,289.2	179,312.7	59,626,733.3	24,194,410.9	147,182,434.5
1907...	2,240,277.0	33,090,791.1	23,550,195.7	16,123,379.1	2,022,407.4	2,947,687.7	124,935.4	60,802,852.3	29,911,664.5	170,814,190.2
1908...	2,670,462.3	14,120,484.4	13,587,867.6	16,849,154.0	1,895,922.0	2,756,752.8	50,062.4	50,935,821.2	26,793,675.7	129,660,202.4

(a) This does not show brandy redeposited, but shows brandy produced and deposited in special bonded warehouses.

(b) Includes high proof spirits in 1903-04.

In the production of the spirits manufactured in 1908, 2,974,853 bushels of malt were used, as against 4,440,315 bushels in 1907; 3,755,519 bushels of rye, as against 6,250,898 in 1907; 17,383,724 bushels of corn, as against 23,474,509 in 1907; showing a decrease of 10,064,698 bushels of grain for 1908.

During the year 1908 a number of very interesting controversies arose in this country and in England under the food laws as to the proper labeling of the various kinds of distilled spirits. A Royal Commission was appointed in England to consider this question, and very extended hearings were given and a large amount of evidence taken as to what was whisky, but up to the end of the year no decision had been rendered, the only report made being in the nature of a preliminary report, which is as follows:

"1. That no restrictions should be placed upon the processes of, or apparatus used in, the distillation of any spirit to which the term 'whisky' may be applied as a trade description.

"2. That the term 'whisky' having been recognized in the past as applicable to a potable spirit manufactured from (1) malt, or (2) malt and unmalted barley or other cereals, the application of the term 'whisky' should not be denied to the product manufactured from such materials.

"We reserve for further consideration the question of the advisability or otherwise of attaching special significance to particular designations such as 'Scotch whisky,' 'Irish whisky,' 'Grain whisky,' and 'Malt whisky,' of placing restrictions upon the use of such designations as trade descriptions; or of requiring such

designations to be used in connection with the sale of whisky."

This, it can be seen, meant practically nothing as far as conditions existed in the United States, as there never had been any controversy as to the use of other grains than malt, or other types of stills than the pot still. In the United States a very interesting condition of affairs arose in connection with the issuing of new regulations by the Bureau of Internal Revenue as to the marking of both distillers' and rectifiers' packages. The important regulations were as follows:

"**DISTILLERS' PACKAGES.** Alcohol. (a) All forms of distilled spirits from which the substances congeneric with ethyl alcohol have been removed for practical purposes altogether, and which have been heretofore marked as 'pure, neutral, or cologne spirits,' will be marked 'alcohol.' (b) That product which has been commercially known as 'alcohol,' from which these congeneric substances have not been removed, will be marked 'commercial alcohol.'

"*Spirits*, as the case may be. The products of distillation in which, by reason of the original material used and the methods of distillation employed, the characteristic substances congeneric with alcohol have been retained, which differentiate them into various forms of potable spirits—such as whisky, brandy, rum, and gin—will be marked with the particular name of such potable spirit, as the case may be, without other description and without the addition of any adjective or descriptive word whatsoever; and the name of such particular spirit will be used even although when any of such spirits may be drawn from the receiving cisterns into casks certain congeneric products of distillation have not been changed by aging or otherwise, so as to bring them to the potable form in which they are ultimately to be placed upon the market, provided such spirits have, before being drawn into the casks, been diluted to potable proof so as to then constitute a crude form of potable spirits.

"**RECTIFIERS' PACKAGES.** A mixture of a particular kind of such potable spirits with alcohol, provided there is enough of such potable spirits to make it a real compound, and not the mere semblance of one, will be marked as a 'compound of' such spirit, with the distillate with which it is mixed—as, for example, 'a compound of whisky and grain distillate'; or, if preferred, with the particular name of such spirit 'compounded with' such other distillate—as, for example, 'whisky, compounded with grain distillate.'

"Alcohol, commercial alcohol, or high wines, which have been manipulated by the aid of artificial flavors, colors, or extracts, or otherwise, so as to resemble some particular kind of potable spirits, will be marked with the name of such spirits, preceded by the word 'imitation'—as, for example, 'imitation whisky.'"

These regulations, which went into effect July 1st, 1908, were bitterly fought by the distillers and rectifiers, injunction suits being brought against the Collectors of Internal Revenue at Cincinnati, Ohio, and Peoria, Ill., and other places, to prevent them from enforcing the regulations.

The particular regulation most bitterly assailed was the one holding that alcohol diluted to 100 proof, colored and flavored, must be labeled

"imitation whisky," "rum" or "brandy," as the case might be.

The first case was brought in Cincinnati, and an enormous amount of evidence was submitted by the government, and Judge Thompson, after hearing the evidence, refused to grant a temporary injunction, and rendered a written decision holding that such a product was correctly branded "imitation whisky." The next case was brought at Springfield before Judge Humphrey, where again voluminous evidence was submitted in the form of affidavits by both sides, but again the decision was against the rectifiers, and again a written decision was handed down by the Judge. In this decision the Judge holds that whisky is not a like substance with alcohol or neutral spirits, being made with entirely different objects and by different methods, whisky being a distilled spirit from grain in every step in the preparation of which an effort is made to produce or preserve the desired flavors which give it its character when it is matured, while with alcohol the opposite is the effort, each step being taken to produce a large amount of alcohol without any taste or flavor. These two sweeping decisions in defense of the regulations have practically settled this part of the controversy. Still other cases were pending in the courts on other points raised under the Food and Drugs Act, but so far the decision of the Attorney General as to what is whisky has been sustained. Another interesting case under the Food and Drugs Act was the seizure of a number of barrels of liquor labeled "Bourbon Whiskey," but made from molasses. The decision in this case was that whisky must be made from grain, and that Bourbon whisky is the product of Kentucky.

The Association of Official Agricultural Chemists and the Association of Dairy and Food Chemists, during the year, issued definitions and standards for various distilled spirits, these being adopted after an extended study of the question and many hearings on the subject. These standards in brief were as follows:

1. *Distilled spirit* is the distillate obtained from a fermented mash of cereals, molasses, sugars, fruits or other fermentable substance, and contains all the volatile flavors, essential oils and other substances derived directly from the materials used, and the higher alcohols, ethers, acids and other volatile bodies congeneric with ethyl alcohol produced during fermentation, which are carried over at the ordinary temperature of distillation and the principal part of which is higher alcohols estimated as amylac.

2. *Alcohol, cologne spirits, neutral spirit, velvet spirit, or silent spirit*, is distilled spirit from which all, or practically all, of its constituents except ethyl alcohol and water are separated, and contains not less than 94.9 per cent. (189.8 proof) by volume of ethyl alcohol.

3. *New whisky* is the properly distilled spirit from the properly prepared and properly fermented mash of malted grain, or of grain the starch of which has been hydrolyzed by malt.

Whisky (potable whisky) is a new whisky which has been stored in wood not less than four years without any artificial heat save that which may be imparted by warming the storehouse to the usual temperature.

4. *Rye whisky* is whisky in the manufacture of which rye, either in the malted condition or

with sufficient barley or rye malt to hydrolyze the starch, is the only grain used.

6. *Bourbon whisky* is a whisky made in Kentucky from a mash of Indian corn and rye and barley malt, of which Indian corn forms more than 50 per cent.

7. *Corn whisky* is whisky made from malted Indian corn, or of Indian corn the starch of which has been hydrolyzed by malt.

8. *Blended whisky* is a mixture of two or more whiskys.

9. *Scotch whisky* is whisky made in Scotland solely from barley malt, in the drying of which peat has been used.

10. *Irish whisky* is whisky made in Ireland.

11. *New rum* is the properly distilled spirit made from the properly fermented clean, sound juice of the sugar cane, the clean, sound massecuite made therefrom, or any sound, clean intermediate product save sugar.

12. *Rum* (*potable rum*) is new rum stored not less than four years in wood without any artificial heat save that which may be imparted by the warming of the storehouse to the usual temperature.

13. *New brandy* is the properly distilled spirit made from wine.

14. *Brandy* (*potable brandy*) is new brandy stored in wood for not less than four years without any artificial heat save that which may be imparted by the warming of the storehouse to the usual temperature.

16. *Cognac, cognac brandy*, is the brandy produced in the departments of the Charente and the Charente Inférieure, France, from wine produced in those departments.

LITERATURE, ENGLISH AND AMERICAN. There were published in the United States in 1908 9,254 new books, and 509 new editions, and in England 7,512 new books, and 2,309 new editions.

No attempt will be made in the following discussion to separate the American from the English books, for in the case of books worth considering the only difference at the most is a few months' delay in the date of appearance. Of 9,254 books appearing in the United States in 1908, of traceable origin, 5,349 were by American authors, 1,145 were by English or other foreign authors reprinted in the United States, and 1,760 were imported ready printed. For 1907 the corresponding figures had been 6,517 American, 1,319 reprints and 1,784 imported.

Fiction. As is shown by the above table there was a decided falling off in the total number of books appearing in 1908 as compared with 1907, the high water mark of the publishing business, and almost every class shows a decreased output except fiction which is far higher than ever before. It cannot be said, however, that there is any corresponding advance in the quality, either of the general average or of the most successful of the novels of the year. The best index of the popular taste in fiction is given by the reports of the book trade in all parts of the United States, compiled by the *Bookman*. According to this the best selling novels of 1908 were the following, arranged approximately in the order of popularity: *The Shuttle*, by Frances Hodgson Burnett; *The Weavers*, by Sir Gilbert Parker; *The Lady of the Decoration*, by Frances Little; *The Barrier*, by Rex E. Beach; *Mr. Crewe's Career*, by Winston Churchill; *The Black Bag*, by Louis Vance; *The Coast of Chance*, by

Esther and Lucia Chamberlain; *The Lure of the Mask*, by Harold MacGrath; *The Daughter of Anderson Crow*, by George Barr McCutcheon; *The Ancient Law*, by Ellen Glasgow; *Somehow Good*, by William F. De Morgan; *Old Wives for New*, by David Graham Phillips; *The Husbands of Edith*, by George Barr McCutcheon; *Halfway House*, by Maurice Hewlett; *The Firing Line*, by Robert W. Chambers; *Together*, by Robert Herrick; *The Man from Brodney's*, by George Barr McCutcheon; *The Little Brown Jug at Kildare*, by Meredith Nicholson; *Peter*, by F. Hopkinson Smith; *The Fruit of the Tree*, by Edith Wharton; *Satan Sanderson*, by Hallie Erminie Rives; *The Old Peabody Pew*, by Kate Douglas Wiggin; *Three Weeks*, by Elinor Glyn; *Rosalind at Red Gate*, by Meredith Nicholson; *The Great Secret*, by Edward Phillips Oppenheim; *The Fair Moon of Bath*, by Elizabeth Ellis; *The Primadonna*, by F. Marion Crawford; *Rose MacLeod*, by Alice Brown; *The Chaperon*, by C. N. and A. M. Williamson; *The Wayfarers*, by Mary Stewart Cutting; *The Post Girl*, by Edward C. Booth; *The Circular Staircase*, by Mary R. Rinehart; *Lewis Rand*, by Mary Johnston; *The Testing of Diana Mallory*, by Mrs. Humphry Ward; *The Trail of the Lonesome Pine*, by John Fox, Jr.

Of these, *The Shuttle*, *The Weavers*, *The Lady of the Decoration*, *The Old Peabody Pew*, *The Daughter of Anderson Crow*, *Three Weeks* and *The Fruit of the Tree* were also among the "best sellers" of 1907. Of the 38 authors of the popular novels of 1908 there were 22 men and 16 women, a much more even division than in 1907 when the figures were 25 to 7. Leaving out Sir Gilbert Parker, Mrs. Burnett and Mrs. Williamson, whom both continents claim, 28 of these novelists were American and 7 English. These two facts are indicative of present tendencies: the increase in the number of women who are successful in fiction and the preference shown in the United States for native novels. Among the importations, however, are some of the best books of the year. We have, for example, no American novel in the list that compares in workmanship and comprehensiveness with *The Testing of Diana Mallory*, which has a wider human interest than Mrs. Ward's political fiction. Nor have we any author to class with De Morgan in the gossipy, garrulous romance of the old-fashioned sort. It is supposed that the taste of the day will tolerate only short, swift and straightforward narratives, but De Morgan disregards all these and gains the affection of his readers for all his characters by the loving care with which he delineates them. *Somehow Good* has the characteristic style of Joseph Vance and *Alice-for-Short*, but strikes a deeper note through the optimistic philosophy implied in the title. Many of the successful novels are practically continuations of former successes. In *Coniston* Mr. Churchill showed how railroad interests may dominate a state and in *Mr. Crewe's Career* a more advanced stage of political corruption is depicted. *The Red City* is a sequel to *Hugh Wynne* during Washington's second administration. With *The Diva's Ruby* F. Marion Crawford completes the story of an operatic career of which the earlier part was told in *Fair Margaret* and *The Prima donna*. *The Barrier* follows closely the lines of Rex Beach's former Alaskan melodrama *The Spoilers*. *The Shoulders of Atlas* is, like the other works of Mary E.



JOEL CHANDLER HARRIS



DONALD G. MITCHELL



CHARLES ELIOT NORTON



EDMUND CLARENCE STEDMAN

Wilkins Freeman, a New England story, distinguished by the delicate handling of a difficult character, a morbidly passionate young girl. In another story of the same region and style, *Rose MacLeod*, the most interesting character is not the titular heroine but a delightful old lady who forges memoirs. *Weeping Cross* by Henry Longan Stuart is a tragic romance of colonial days in Massachusetts written with a vigor and intensity seldom found in historical novels of any period. *The Climber* by E. F. Benson narrates the rise and fall of a heartless social aspirant, who talks the language of the author's first popular heroine "Dodo."

The tendency to disregard the conventional limitations of American fiction is exemplified in Robert Herrick's *Together* and David Graham Phillips's *Old Wives for New*, both exposing frankly the intimacies of married life. Another attempted solution of the marriage question is *Santa Lucia: A Common Story*, by Mary Hunter Austin, author of *The Land of Little Rain*. In *The Firing Line*, as in his former novel *The Younger Set*, Robert Chambers opposes divorce. Mr. Hewlett's *Halfway House* is a Meredithian romance of an ill-assorted couple.

It is interesting to note the recrudescence of symbolism in recent fiction as well as in the drama. The best examples of this are: *The Passing of the Third Floor Back* by Jerome K. Jerome, a tenderly whimsical story of a Bloomsbury boarding house redeemed by a gentle guest; *William Jordan, Jr.* by John C. Snaith, the sufferings of a genius in an alien world; *The Old Room*, a translation from the Danish of the late Carl Ewald, the eternal struggle between the old and the new; and *The Man Who Was Thursday*, a phantasmagoria of humor, paradox, adventure and allegory, by G. K. Chesterton. We have, as usual, a good group of Southern novels, of which *The Trail of the Lonesome Pine* by John Fox, Jr. is easily first, but also worthy of mention are: *Kincaid's Battery* by George W. Cable, *The Fair Mississippian* by Charles Egbert Craddock (Miss Murfree) and *Judith of the Cumberland* by Alice MacGowan. Mrs. Gertrude Atherton's two books, *The Gorgeous Isle* and *The Doomsman*, have their scenes respectively in the West Indies and in California before the American occupation. *Little Brown Brother* by Stanley Portal Hyatt deals with the Philippine question. Robert Hichens supplies a sequel to his Neapolitan romance *The Call of the Blood* in *A Spirit in Prison*, set sixteen years later.

There are many novels with a socialistic aim, the most important of which are: *The Metropolis* and *The Moneychangers* by Upton Sinclair, complementary to *The Jungle* and showing the extravagance of luxury; *The Iron Heel* by Jack London, a lurid prophecy of a coming war of the classes; and *The War in the Air* by H. G. Wells, an anti-military romance. Marie Corelli in *Holy Orders* inveighs against yellow journalism, the drink evil and many other things. Two sombre novels of prison life and its effects are: *9009* by James Hopper and Fred R. Becholdt, and *The Ancient Law* by Ellen Glasgow. *An Immortal Soul* by W. H. Mallock and *The Guest of Quesnay* by Booth Tarkington have double personality for their theme. *The Mother of the Man* is the most powerful of Eden Phillpotts's Dartmoor romances. William Dean Howells contributes to this year's list only a sentimental psychological sketch, *Fennel and Rue*. Edith Wharton gives us

a volume of short stories, *The Hermit and the Wild Woman*. The unraveling of mysteries by detectives, amateur and professional, is as popular a theme as ever. We have mentioned the most successful, i. e., *The Black Bag*, *The Coast of Chance*, *The Lure of the Mask*, *The Circular Staircase*, *The Great Secret*. Other novels of the year which should have special mention are: *Peter* by F. Hopkinson Smith, a gentleman hero of the old-fashioned sort; *The Fly on the Wheel*, by Katherine Cecil Thurston, a powerful but unpleasant story; *The Great Miss Driver*, by Anthony Hope (Hawkins), the career of a masterful woman; *Wroth*, by Agnes and Egerton Castle, written in a style of exaggerated verbal coloring; *Interplay*, by Beatrice Harraden, advocating an equal standard of morality; *Exton Manor*, by Archibald Marshall, a tempest in a village teapot over the deceased wife's sister question; *Seraphica*, by Justin H. McCarthy, a butterfly romance; *A Prophet in Babylon*, by W. J. Dawson, advocating aggressive religious methods; *The Rescuer*, by Percy White; *When the Tide Turns*, by Filson Young; *Lady Noggs Intervenes*, by Edgar Jepson; *Janet of the Dunes*, by Harriet T. Comstock; *Come and Find Me*, by Elizabeth Robins, another Alaska story; *Princess Penniless*, by S. R. Crockett; *The Heart of a Child*, by Frank Danby (Mrs. Julia Frankau); *The Letters of Jennie Allen to Her Friend Miss Musgrove*, by Grace Donworth, and last, the volume of genuinely human humor, *Salhaven*, by W. W. Jacobs.

POETRY AND DRAMA. The most noteworthy poetical event of the year was the publication of the third volume of *The Dynasts*, by Thomas Hardy, completing the great historical drama which he began seven years ago. There has been a marked change in the attitude of the critics toward this ambitious undertaking during its publication. The announcement of the intention to cover the whole period of the Napoleonic wars in a drama of one hundred and thirty or more scenes, with a multitude of speaking parts, including both historical and allegorical personages, aroused much scepticism and not a little derision; but now it is generally recognized that the gigantic task has been worthily performed, that the work as a whole presents an impressive spectacle of this vast tragedy in which all the great nations of Europe were actors, and that there are many passages in it of true poetic inspiration. Among other dramas in verse must be mentioned *The Duke of Gandia*, by Algernon Swinburne; *The House of Rimmon*, by Henry Van Dyke; a translation of Hauptmann's *Hannele*, by Charles Henry Meltzer; and a free stage adaptation of Goethe's *Faust*, by Stephen Phillips and J. Comyns Carr. The reading of plays is evidently becoming popular in America as it has been in France. Most prominent among the published prose plays are two by Charles Rann Kennedy, *The Servant in the House*, which introduces a character symbolic of Christ, and *The Winterfeast*, which did not attain the success of the former on the stage. Other published plays that should be mentioned are: Percy Mackaye's *Mater and The Scarecrow*; *The Man from Home*, by Booth Tarkington and Harry Leon Wilson, and *The Worth of a Woman*, by David Graham Phillips. In this connection may best be mentioned two volumes of dramatic criticism: *Other Days*, by William Winter, and *The American Stage of To-day*, by Walter Pritchard

Eaton; three biographies, *The Life of Henry Irving*, by Austin Brereton; *Richard Mansfield*, by Paul Wilstach, and *The Story of My Life*, by Ellen Terry; *Henrik Ibsen: the Man and His Plays*, by Montrose J. Moses; *Elizabethan Drama, 1558-1642*, in two volumes, by Felix E. Schelling; *The Appreciation of the Drama*, by Charles H. Caffin.

Among the volumes of poetry appearing during the year should be noted: *Drake: An English Epio*, by Alfred Noyes; *New Poems*, by Stephen Phillips; *The Autumn Garden*, by Edmund Gosse; *Narcissus and Other Poems*, by Grace Denio Litchfield; *The Golden Hynde and Other Poems*, by Alfred Noyes; *The Call of Dawn and Other Poems*, by Esmé C. Wingfield-Stratford; *The Book of the Little Past*, by Josephine Preston Peabody; *Omar Repentant*, by Richard Le Gallienne, and *Lyrics of Lowly Life*, by the late Paul Laurence Dunbar.

LITERARY HISTORY, CRITICISM AND BIOGRAPHY. First place here should be given to *The New English Dictionary on Historical Principles*, commonly known as the "Oxford Dictionary," of which the sixth volume has been issued completing the letter M. The editors are James H. H. Murray, Henry Bradley and W. A. Craigie, assisted by numerous scholars and readers in England and the United States. Its pages measure 13½ by 10½ inches and it indexes about twice as many words as the Century Dictionary, hitherto the largest, and has ten times as many illustrative quotations. As far as possible a quotation is given from each century of the use of a word in a particular sense. Another extensive work is the *Cambridge History of English Literature*, in fourteen volumes, of which the third, dealing with the Renaissance and the Reformation, has appeared. It will cover the whole course of English literature from Beowulf to the Victorian Age, giving an account of the successive movements, the progress of the language, the influence of foreign literature, and comprehensive bibliographies. The chapters are written by different specialists under the editorship of A. W. Ward. Another *History of English Literature* is by William Robertson Nicoll and Thomas Secombe.

Of unique literary interest is the publication, by the Carnegie Institution of Washington, of a complete photo-reproduction of *The Old Yellow Book*, the source of Browning's "The Ring and the Book," with translation, essay and notes by Charles W. Hodell. The second volume of George Saintsbury's *History of English Prosody*, from the twelfth century to the present day, appeared in 1908. Also, the fifth volume of Paul Elmer More's *Snelburne Essays: The Standard of Usage in English*, by Thomas R. Lounsbury, is a lively attack upon the pedantry of the purists. Similar in point of view is *Inquiries and Opinions*, by Brander Matthews. Other collections of essays, literary and personal, are: *The Age of Shakespeare*, by Algernon C. Swinburne; *Technique of the Novel*, by Charles F. Horne; *Magazine Writing and the New Literature*, by Henry Mills Alden, editor of *Harper's Magazine*; *Park Street Papers*, by Bliss Perry, editor of *The Atlantic*; *De Libris, Prose and Verse*, by Austin Dobson; *A Chronicle of Friendships*, by Will H. Low; *A Happy Half-Century*, by Agnes Repplier; *In a New Century*, by E. S. Martin; *At Large*, by Arthur C. Benson; *Leaf and Tendril*, by John Burroughs; *The Open Window: Tales of the Months*, by Mabel Osgood Wright;

and *Adventures in Contentment*, by David Grayson.

Of literary biographies there were none of supreme distinction in 1908, but the following are noteworthy: *Lucretius, Epicurean and Poet*, by John Masson; *Petrarch, His Life and Times*, by H. C. Hollway Calthrop; *Thomas Chatterton, the Marvelous Boy*, by Charles E. Russell; *John Keats, a Literary Biography*, by Albert E. Hancock; *Edgar Allan Poe*, by John E. Macy; *Concerning Lafcadio Hearn*, by George M. Gould; *The Life of Thomas Bailey Aldrich*, by Ferris Greenslet; *William Morris*, by Alfred Noyes; *Queen of Letter Writers, Marquise de Sévigné*, by Janet Aldis; *Letters of Samuel Reynolds Hole*, by G. A. B. Dewar; *The Letters of Edward Lear*, by Lady Strachey; and the *Letters of Wordsworth's Family, from 1787 to 1855*, edited by W. Knight.

HISTORY. Although there was no falling off in the number of histories published in 1908, there were not so many noteworthy works as in the preceding year. One new volume of *The Cambridge Modern History*, projected by the late Lord Acton and written by associated scholars, was published, Vol. V., treating of the age of Louis XIV. and including a chapter on the Colonies and India. Sir George Otto Trevelyan's *History of the American Revolution* has reached its third part and the year 1778. Sydney George Fisher's *Struggle for American Independence* is original and interesting, although by no means so comprehensive and judicial as Trevelyan's.

Among the Canadian histories called forth by the anniversary pageants, may be noted: *The Tercentenary History of Canada*, from Champlain to Laurier, a comprehensive compilation by Frank B. Tracy, in three volumes; *The Making of Canada*, by A. G. Bradley, more brilliantly written; *Canadian Types of the Old Régime, 1608-1698*, by Charles W. Colby; *The Conquest of the Great Northwest*, the story of the Hudson's Bay Company, by Agnes C. Laut. We must include the names of two notable Italian histories which appear in English translations: Pompeo Gherardo Molmenti's *Venice*, its individual growth from the earliest beginnings to the fall of the republic, in six volumes, translated by Horatio F. Brown, a scholarly and comprehensive piece of work; and *The Greatness and Decline of Rome*, by Guglielmo Ferrero, whose lecture tour in America added interest to his original and somewhat iconoclastic treatment of well-worn themes. Under the title of *The Latins in the Levant*, William Miller gives a careful study of Frankish Greece after the Fourth Crusade. New light on recent events in Russia is thrown by *The Coming Struggle in Central Asia*, by B. L. Putnam Weale (pseud. for Bertram Lenox Simpson); *The Year in Russia*, by Maurice Baring; *The Tragedy of Russia in Pacific Asia*, by Frederick McCormick, and *Russia's Message, the Import of the Revolution*, by William English Walling. Other historical works of the year are: *The Mongols in Russia*, by the late Jeremiah Curtin, a continuation of his book *The Mongols*, of last year; *The Russian Conquest of the Caucasus*, by John F. Baddeley; *Studies in the History of Venice*, by Horatio F. Brown; *Dumouriez and the Defense of England Against Napoleon I.*, by J. H. Rose; *Ancient Britain and the Invasions of Julius Cæsar*, by T. R. E. Holmes; *Wisconsin, the Americanization of a French Settlement*, by Reuben Gold Thwaites; *Minnesota*, by W. Watts Folwell; *The Witch-*

craft Delusion in Colonial Connecticut, 1647 to 1697, by John M. Taylor; *The Campaign of Santiago de Cuba*, by Herbert Howland Sargent; *Mexico of the Twentieth Century*, by Percy Falcke Martin; *The Story of the Guides*, by George John Younghusband; the second volume of Edward Channing's *History of the United States* brings it down to 1760. *The Story of a Street*, a narrative history of Wall Street from 1644 to 1908, by Frederick Trevor Hill.

BIOGRAPHY. The centenary of the births of Abraham Lincoln, Charles Darwin and Edgar Allan Poe brought out a flood of biographical literature, but in fields so well worked little new material remained to be discovered. In fact the year's record contains no eminent works in biographical literature. One which was most favorably received as a successful accomplishment of a delicate task is *The Life of Alice Freeman Palmer*, President of Wellesley College, by her husband, George Herbert Palmer. This reminds one of an English biography, inferior to it from a literary point of view, *The Life of Dorothy Beale*, Head-Mistress of Cheltenham College, by Elizabeth Raikes. Herbert Spencer's *Autobiography* was supplemented in 1908 according to the request expressed in his will by *The Life and Letters of Herbert Spencer*, by David Duncan, a creditable work in two volumes. Other English biographies and memoirs of interest are the following: *The Life of Gilbert Burnet*, Bishop of Salisbury, by T. E. S. Clark; *The First George in Hanover and England*, by Lewis Melville; *William the Conqueror and the Rule of the Normans*, by Frank Merry Stenton; *Two English Queens and Philip*, by Martin Hume; *John Thaddeus DeLanc*, Editor of "The Times," *His Life and Correspondence*, by Arthur Irwin Dasent; *Memoirs of Eight Parliaments*, by Henry W. Lucy; *Rambling Recollections*, by Sir Henry Drummond Wolff; *Memoirs of Half a Century*, by R. C. Lehman; *The Holland House Circle*, by Lloyd Sanders; *Reminiscences*, by Lady Randolph Churchill; *The Story of a Beautiful Duchess*, Elizabeth Gunning, Duchess of Hamilton and Argyll, by Horace Bleakley; *Love Letters of Mary Wollstonecroft*, Introduction by Roger Ingpen.

In American biography we have the third volume of *The Reminiscences of Carl Schurz*, 1863-1869, left incomplete at his death, and supplemented by a sketch of his life and public services from 1869 to 1906, by Frederic Bancroft and William A. Dunning; *The Letters of Mrs. James G. Blaine* in two volumes, edited by Harriet S. Blaine Beale; *Stephen A. Douglas*, by Allen Johnson; *The Life and Public Services of William Pitt Fessenden*, by Francis Fessenden; *Thomas Alva Edison*, by Francis Arthur Jones. In the field of French biography we have Andrew Lang's life of Joan of Arc, *The Maid of France*, and four books on Napoleon and the French Revolution. *Napoleon and the Archduke Charles*, by F. Lorraine Petre; *Napoleon*, by J. T. Herbert Bailly; *Danton and the French Revolution*, by Charles F. Warwick; *The Princess de Lamballe*, by B. C. Hardy. In the field of the fine arts should be noted *The Life of James McNeill Whistler*, by E. R. and J. Pennell; *Musical Memories*, recollections of the celebrities of the half-century, 1850 to 1900, by George P. Upton; *The Life of Beethoven*, by Alice M. Diehl, and *Lorenzo the Magnificent and Florence in Her Golden Age*, by E. L. S. Horsburgh.

POLITICAL AND SOCIAL SCIENCE. One of the most important contributions to English civics of this or of many years is the *Government of England*, by A. Lawrence Lowell. This was at once recognized on both sides of the Atlantic as a thoroughly competent study of the political system of Great Britain, comparable only to Bryce's *American Commonwealth* for accuracy and literary skill in the handling of an immense mass of difficult material. Two authoritative works on international politics resulting from the exchange of professors between American and European universities, are the lectures given by Archibald Cary Coolidge at the Paris Sorbonne on *The United States as a World Power*; and those given by André Tardieu at Harvard University on *France and the Alliances*, a discussion of the diplomatic history of France since the Franco-Prussian War. The lectures given in 1887-88, by Frederick William Maitland, on *The Constitutional History of England*, were edited by Herbert Fisher. A collection of addresses by William Howard Taft was published under the title, *Present Day Problems*. A similar title, *Problems of To-Day*, was chosen by Andrew Carnegie for the volume in which he expresses his views on wealth, labor, wages, thrift, the land, Socialism, etc. *The Trust Movement in British Industry*, by William Henry Macrosty, is an admirable survey of the subject. *The Essentials of Economic Theory as Applied to Modern Problems of Industry and Public Policy*, by John Bates Clark of Columbia University, is recognized as an original and able contribution to the discussion of current questions. In *Sin and Society*, Edward Alsworth Ross discusses, in his usual epigrammatic and brilliant style, certain new "smokeless sins" which do more harm to society than the universally reprobated vices. Professor Ross's *Social Psychology*, although intended as a text-book, is almost equally readable. From the other side of the Atlantic comes a book with a similar title but very different style and content, *An Introduction to Social Psychology*, by William McDougal. An unusual number of studies of various phases of the negro problem have appeared; among them: *Following the Color Line*, by Ray Stannard Baker; *Race Adjustment*, by Kelly Miller; *Race Questions, Provincialism and Other American Problems*, by Josiah Royce; and *Studies in the American Race Problem*, by A. H. Stone. There are three volumes on the tramp: *The Elimination of the Tramp*, by Edmond Kelly, advocating labor colonies on the European plan; the practical experiences of Josiah Flynt, published in *My Life*; and of Jack London in *The Record*. Two cleverly written books representing opposing standpoints are H. G. Wells' *New Worlds for Old*, and W. H. Mallock's *Critical Examination of Socialism*. *The Young Malefactor*, by Thomas Travis, is a useful study of juvenile delinquency. Other volumes which should be mentioned here are: *The Lamb Slain from the Foundation of the World*, by Richard Heath, the sufferings of mankind throughout history; *Justice and Liberty*, by G. Lowes Dickinson, a political dialogue; *The Cry of the Children*, by Bessie Van Vorst; *Weepers in Play Time*, by Beatrice Sands; *The Money God*, by John C. Van Dyke, and *Money Hunger*, by Henry Wood; *The American As He Is*, by Nicholas Murray Butler, President of Columbia, lectures before the University of Copenhagen; and *The Home Builder*, by Lyman Abbott.

RELIGION AND PHILOSOPHY. A marked feature of the religious literature of recent years is the production of encyclopedic works. James Hastings, who not long ago edited a *Dictionary of the Bible*, which has for its only rival Cheyne's *Encyclopædia Biblica*, has completed, with the assistance of J. A. Selbie, a *Dictionary of Christ and the Gospels*, in two large volumes; and the same editors have begun the publication of an *Encyclopædia of Religion and Ethics*, with the assistance of many other scholars. The aim of the encyclopædia will be to give an account of all the great and small religions of the world and of the ethical and philosophical theories connected with them. It will be completed in ten or twelve volumes of more than 900 pages each. A similar work of which the first volume has also appeared is *The New Schaff-Herzog Encyclopædia of Religious Knowledge*, embracing Biblical, historical, doctrinal and practical theology and Biblical, theological, and ecclesiastical biography from the earliest times to the present day. This is based on the third edition of the *Real Encyklopädie* of Herzog and Hauck, and is prepared by more than six hundred scholars under the supervision of Samuel Macauley Jackson, C. C. Sherman and G. W. Gilmore. On a similar scale and plan as the great *Jewish Encyclopædia* completed two years ago, we have the *Catholic Encyclopedia*, an international work of reference on the constitution, doctrine, discipline and history of the Catholic Church, edited by Charles G. Herbermann, Edward A. Pace, Condé B. Pallen, Thomas J. Shahan, John J. Wynne, assisted by numerous collaborators. Four volumes have appeared and there are to be fifteen in all, each of about 800 pages, with colored plates and maps and numerous illustrations, altogether some 30,000 articles covering all questions bearing on the origin, constitution and development of the church, as well as on its complex and manifold influences on the intellectual, moral, religious, artistic, social and material progress of the last nineteen hundred years. It presents divergent opinions and the theories of radical critics with great fairness in accordance with the promise of its prospectus that, "In matters on which the church has not delivered a decision the different views of acknowledged authorities will be impartially recorded." In England was published *Murray's Illustrated Bible Dictionary*, edited by Rev. William C. Piercy, much more conservative in its standpoint than Cheyne's or even Hastings'. A well-written and accurate volume on the *Canon and Text of the New Testament* is from the pen of Casper René Gregory, an American who is professor of New Testament exegesis in the theological faculty of the University of Leipsic. G. H. Box's *The Book of Isaiah* is scholarly, clear, fearless and reverent. John M. Thomas, President of Middlebury College, Vt., discusses Biblical problems in the constructive spirit in *The Christian Faith and the Old Testament*. Two large volumes of *Old Testament and Semitic Studies*, comprising twenty-six essays contributed by scholars in fourteen institutions of learning, are published under the editorship of Robert Francis Harper, Francis Brown and George F. Moore, in memory of William Rainey Harper, late President of the University of Chicago, and one of the pioneers in Semitic scholarship in this country. There has been a great deal of controversial literature on modernism since its condemnation by the encyclical of Pius X., of which

may be mentioned: *Medievalism*, by George Tyrrell, a reply to Cardinal Mercier; *Modernism*, by Alfred Leslie Lilley, and two translations: *Modernism*, by Paul Sabatier, from the French, and *The Programme of Modernism*, from the Italian. *Christianity and the Social Order*, by Reginald J. Campbell, of City Temple, London, is representative of many works advocating Socialism from a Christian standpoint. *The Sense of the Infinite* is a study of the transcendental element in literature, life and religion, from Plato to the present, by Oscar Kuhns. Henry C. King, President of Oberlin, deals frankly with the obstacle to faith in the Christian religion in *The Seeming Unreality of the Spiritual Life*. The lectures upon the great thinkers of Greece, from Homer to Plato, by James Adam, are published in *Religious Teachers of Greece*. *Lollardy and the Reformation in England*, by James Gairdner, is a thorough historical survey, but written from a standpoint unsympathetic to the Lollards.

Two notable contributions to ethics are: *The Origin and Development of the Moral Ideas*, by Edward Westermarck, an extensive and able sociological study, of which the second and concluding volume has appeared; and *Ethics*, by John Dewey and James Hayden Tufts, which, though intended primarily as a textbook, attracts the general reader, on account of its lucidity and originality. Other books in this field, of general interest, are: *The Philosophy of Loyalty*, by Josiah Royce, inspiring lectures by one of the foremost philosophers of America; *Personalism*, by Borden Parker Bowne, a plea for personal idealism in philosophy and an enlightened orthodoxy in religion; *The Religion of a Democrat*, by Charles Zueblin, popular lectures of a radical nature; *First and Last Things*, by H. G. Wells, frank expression of personal views on a great variety of topics ranging from metaphysics to marriage; *Orthodoxy*, by G. K. Chesterton, a witty and original argument in defense of Christian orthodoxy, as summarized in the Apostle's Creed, a companion piece to his *Heretics*; two more volumes of the positivist essays of Frederic Harrisson; *The Philosophy of Common Sense*, and *National and Social Problems*. *The Philosophical Basis of Religion*, by John Watson, lectures presenting a rationalistic reconstruction of the history of religious belief; *Psychological Phenomenon of Christianity*, by George Barton Cutten.

The lectures on Pragmatism given at Columbia by Professor William James of Harvard, two years ago, resulted in the production of a large volume of *Essays Philosophical and Psychological*, in his honor, by John Dewey, F. J. E. Woodbridge, Felix Adler, and other members of the Columbia faculty; another volume of Nietzsche's work, *Beyond Good and Evil*, has been translated by Helen Zimmern, and Henry L. Mencken has given in one volume a clear statement of views from the standpoint of a disciple in *The Philosophy of Friedrich Nietzsche. A Mind That Found Itself*, by Clifford W. Beers, is a unique contribution to abnormal psychology, being the experiences of an insane man told after his recovery. *On the Witness Stand*, by Hugo Münsterberg, is an argument for the use of laboratory methods in the court room for testing the credibility of witnesses. The movement started in the Emmanuel Church of Boston, for the cure of nervous disorders by suggestion and religious influences, is described by its leaders, in *Religion and*

Medicine, by Elwood Worcester, Samuel McComb and Isadoré H. Coriat.

A large number of other books have appeared on psychotherapy and the influence of the mind on bodily conditions. The first systematic exposition of the philosophy and theology of Christian Science is Gerhardt C. Mars's *The Interpretation of Life*; and in connection with this may be mentioned an authorized *Life of Mary Baker Eddy*, by Sibyl Wilbur. The revival of interest in spiritistic phenomena is shown by the appearance of numerous books on this and allied topics. Sir Oliver Lodge in *Man and the Universe*, *Religious Studies*, and other volumes, advocates the expansion of science to include what he regards as discoveries in the psychical realm; James H. Hyslop's *Psychical Research and the Resurrection* is the fourth of his volumes on that subject; Hamlin Garland's *The Shadow World* presents recent psychical research in a semi-fictional form; Frank Podmore's *The Naturalization of the Supernatural* is a critical and historical survey of the field.

TRAVEL AND DESCRIPTION. This is the unsatisfactory heading commonly used to include the many books descriptive of various countries at the present time, ranging from mere guide books and jottings of purely personal interest, to thorough studies of geography and recent history. Of the last, the most conspicuous representative is *Modern Egypt*, by Earl Cromer, an admirable account of the regeneration of that country under his administration. Dealing with the same land, but widely different in character, is *Egypt and Its Monuments*, of which the illustrations by Jules Guérin are of more value than the accompanying text by Robert Hichens. Winston Churchill shows that he has not forgotten his former profession in becoming a cabinet officer, by describing his recent trip into Uganda in *My African Journey*. Of European travel Italy, as usual, is most numerously represented. We have a book of sketches by W. D. Howells in his usual delightful style, *Roman Holidays*; the second volume of F. Hamilton Jackson's scholarly work on *The Shores of the Adriatic*, dealing with the Austrian side, the Küstenland, Istria and Dalmatia, especially its archaeology. Here, also, may be mentioned *Herculaneum, Past, Present and Future*, by C. Waldstein and Leonard Shoo-bridge; *Buried Herculaneum*, by Ethel Ross Barker; *The Romance of Roman Villas*, by Elizabeth W. Champney; *The Cathedrals and Churches of Northern Italy*, by T. Francis Bumpus; *The City of Genoa*, by Robert W. Carden; *Italica*, studies in Italian life and letters, by William Roscoe Thayer.

In Asia the most important contributions are from the Carnegie Institution of Washington: two quarto volumes of *Explorations in Turkestan*, by Raphael Pumpelly and others; and five quarto volumes of *Research in China*, by Bailey Willis, Charles D. Walcott and others. Other volumes of Asian travel are: *Out-of-Doors in the Holy Land*, by Henry Van Dyke; *Jerusalem*, by George Adam Smith; *Twenty Years in Persia*, by John C. Wishard; *Persia; the Awakening East*, by W. P. Cresson; *By Desert Ways to Baghdad*, by Louisa Jebb; *A Sketch of the Geography and Geology of the Himalaya Mountains and Tibet*, by Col. S. G. Burrard and H. H. Hayden; *Ice-Bound Heights of the Mustagh*, by W. H. and F. B. Workman; *Burma*, by Sir James George Scott; *In Korea with Marquis Ito*, by George

Trumbull Ladd. In America the most interesting volumes are four narratives of exploring and collecting tours: *A Canyon Voyage*, by Frederick G. Dellenbaugh, describing the Powell expedition down the Green and Colorado rivers 40 years ago; *Camps and Cruises of an Ornithologist*, by Frank M. Chapman; *Camp-Fires on Desert and Lava*, by William T. Hornaday; *Newfoundland and Its Untrodden Ways*, by John Guille Millais. This brief survey must not be concluded without mention of *Alaska*, by Ella Higginson; *The Niagara River*, by Archer Butler Hulbert; *The Other Americans*, by Arthur Ruhl; *Andes and the Amazon*, life and travel in Peru, and *Peru*, its former and present civilization, by C. Reginald Enock; *Through Southern Mexico*, by Hans Gadow; *Guide to the West Indies and Bermuda*, by F. A. Ober; *The Cradle of the Deep* (West Indies), by Sir Frederick Treves; *New Zealand*, painted by F. and W. Wright, described by W. P. Reeves; and *The North-west Passage*, by Roald Amundsen.

LIVE STOCK EXPOSITION. See AGRICULTURE.

LLOYD-GEORGE, DAVID. A British statesman, was appointed Chancellor of the Exchequer, on the reorganization of the British ministry after the resignation of Sir Henry Campbell-Bannerman in April, 1908. He was born in Manchester in 1863 of Welsh parents and was educated in Wales. He became a solicitor in 1884, and since 1890 has represented the Caranarvon boroughs in Parliament. He soon acquired a reputation for ability and radicalism, fearlessly opposing the Boer War, and at all times championing the cause of the workingman. After the Liberal victory in 1906 he became President of the Board of Trade, and has since distinguished himself by settling the cotton strike dispute which involved 300,000 workmen, and by averting a threatened strike of all the railroad employees in the Kingdom.

LOAN AND TRUST COMPANIES. Owing to the intimate connection of the trust companies of New York City with the financial panic late in 1907, much interest was manifested in them in banking circles during the year. During the closing months of 1907 some of these companies were put to the severest tests to which financial institutions in this country have been subjected in recent years. Four companies, the Knickerbocker, Jenkins, Williamsburg and International, were forced to suspend. While some abuses were disclosed in the sequel, trust companies as a whole made a remarkable showing. The deposits of trust companies of Greater New York were decreased by \$354,696,000, or over 37 per cent., by the demands of financial stress. These demands, moreover, came at a time when the procuring of funds was extremely difficult. About the beginning of 1908, however, deposits began to increase, and continued to do so with such rapidity that on August 31st, 1908, the metropolitan companies showed deposits of \$945,393,597, or almost precisely the amount held on August 22d, 1907. The period of most rapid recovery was in the second quarter of the year, March 25th to June 17th. The total investments of these companies aggregated \$278,000,000 December 31st, 1907; on March 25th they had fallen \$5,000,000, but on June 17th they amounted to \$324,000,000, and on August 31st, to \$346,000,000. This latter sum exceeded by about one million the amount of investments in August,

1907. The loans, however, did not show similar recovery. On the dates indicated they were as follows, in millions of dollars: August, 1907, \$670; December 31st, 1907, \$417; March 25th, 1908, \$436; June 17th, \$504; August 31st, \$522.

The report of the Comptroller of the Currency showed that there were 842 loan and trust companies in the United States on June 17, 1908, with aggregate resources of \$2,865,632,000. This was an increase of 48 in their number, but a decrease of \$205,786,000 in their resources, compared with June, 1907. Practically all of this decrease was due to the condition of New York companies, which, as already shown, recovered this falling off in the months following June. The principal items of resources were as follows: Loans, \$1,380,432,000; investments in bonds and other securities, \$775,875,000, and cash on hand, \$118,398,000. The liabilities included capital stock paid in, \$278,408,000; surplus and undivided profits, \$416,039,000, and deposits, \$1,866,964,000. Compared with 1907 there was a decrease of \$221,682,000 in loans and of \$194,658,000 in deposits, while capital showed an increase of \$2,362,000, and surplus of \$17,174,000. Loan and trust companies in Pennsylvania, Rhode Island, New Jersey and Missouri, shared with New York the decrease in resources. The number of companies in New York was 88; in Pennsylvania, 327; in Indiana, 91; in New Jersey, 75; and in Massachusetts, 52. While the capital invested in trust companies in Pennsylvania exceeded that in New York, companies in the latter State had 44 per cent. of the total resources of all companies.

The favorable position of New York City trust companies during the past few years has been due to the low cash reserve against deposits required of them. This enabled them to use deposits most freely and therefore to pay unusual rates of interest on deposits, thereby further increasing deposits and ability to engage in financial operations. The close connection between this condition and the October, 1907, crisis, in which the trust companies played a leading part, led to legislative action, requiring that trust companies in New York City, Borough of Manhattan, maintain a cash reserve against deposits of 15 per cent. all in cash; those in other boroughs, 15 per cent. two-thirds in cash, and those elsewhere, 10 per cent. one-half in cash. See **BANKS AND BANKING.**

LOCOMOTIVES. While the number of locomotives built during 1908 was the smallest in ten years and was less than one-third of the record-breaking output of 7,362 in 1907, some interesting tendencies in design were apparent. For heavy and high speed passenger service the so-called Pacific type, which has a four-wheel leading truck, three pairs of driving wheels and a two-wheel trailing truck under the firebox, was the prevailing design ordered. While the maximum weight on driving axles in a few instances reached 57,000 pounds, the general practice was to limit the weight to below 55,000 pounds. Locomotive weights show a tendency to constantly increase, and the solution of the difficulties due to excessive driving wheel loads appears to be to increase the number of such wheels, and the division of the machine into two separate and articulated units with the two sets of cylinders compounded. This is known as the Mallet articulated compound type, and was first used in the United States on the mountain section of

the Baltimore & Ohio for hauling very heavy freight trains up steep grades. The Great Northern and the Erie ordered locomotives of this type in 1907. The Erie engines were the largest built up to the end of 1908; they weigh 410,000 pounds, and have a tractive effort of 94,800 pounds, which is the equivalent of three ordinary freight locomotives. During 1908 nine other railway companies placed orders for Mallet type locomotives. Two of these, which were ordered by the Central Pacific, will exceed the Erie locomotives in weight, as they are to weigh 430,000 pounds. Heretofore the articulated compound type had been used exclusively for slow heavy freight service. The Atchison, Topeka & Santa Fe, however, has ordered a number of these locomotives which will be used for hauling heavy passenger trains over the Rocky Mountains. They will have four pairs of driving wheels and a four-wheel pony truck for each half or unit.

The Walschaerts valve gear was used on a large proportion of the locomotives built in 1908, and may be said to have gained a firm foothold in American practice. It is driven by outside connections, whereas the older Stephenson link motion, which it seems destined to replace, is driven by eccentrics on the axles between the frames. Less weight and greater accessibility for repairs and adjustments are the principal advantages of the Walschaerts gear. Superheating made little progress in 1908, although a few locomotives were equipped with superheaters of both the smoke-box and fire-tube type. With the exception of the Mallet type engines already referred to, only a few compound locomotives were ordered. The additional complication of compound locomotives seemingly offsets the small gain in economy. See **RAILWAYS.**

LOUD, EUGENE F., An American politician, died in San Francisco, on December 20, 1908. He was born in Abington, Mass., in 1847, went to sea at the age of thirteen, and enlisted in the Union Army when only fifteen years old, serving through the last three years of the Civil War. After the war he settled in California, became prominent in Republican politics, and was a member of Congress from 1891 to 1903. In the House he was a recognized expert in postal matters, and for several years was chairman of the Committee on Post Office and Post Roads. He was American delegate to the Universal Postal Congress at Rome in 1906.

LOUISIANA. One of the Gulf States of the United States. Its area is 48,506 square miles, of which 3,097 square miles are water. The population of the State, according to a Federal estimate, was, in 1908, 1,592,056. The largest cities are New Orleans, with an estimated population in 1906 of 250,000; Shreveport, 32,000; and Baton Rouge, 19,000.

MINERAL RESOURCES. Petroleum is the most valuable of the mineral products of the State. The production for 1907 was 5,000,221 barrels, as against 9,077,528 barrels in 1906. The value of the petroleum produced in 1907 was \$4,063,033, as against a value of \$3,557,838 in 1906, thus the decrease in the production in 1907 over 1906 was more than equalled by the increase in value of the product. Petroleum is produced in the State in three chief fields, the Anse-la-Butte Field, Jennings Field, and the Caddo Field. A great quantity of sulphur is produced in the State. Louisiana produced clay products in 1907 valued

at \$928,570, as compared with a value of \$900,697 for the product of 1906. Other mineral products are clay products, coal products, mineral waters, natural gas, salt, sand and gravel. In the output of all these substantial gains were made in 1907. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$10,876,719, as compared with a value in 1906 of \$10,334,030.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 33,898,000 bushels, valued at \$23,729,000, from 1,712,000 acres; oats, 600,000 bushels, valued at \$384,000, from 30,000 acres; rice, 11,550,000 bushels, valued at \$9,009,000, from 350,000 acres; potatoes, 1,066,000 bushels, valued at \$981,000, from 13,000 acres; hay, 31,000 tons, valued at \$341,000, from 22,000 acres; tobacco, 86,700 pounds, valued at \$27,774, from 102 acres. The production of the cotton crop in 1908-9 was 472,000 bales, which was a decrease from the crop of 1907-8, which was about 712,000 bales. The decrease in the production of cotton has been marked for several years. The largest cotton crop was that of 1904-5 when 1,113,589 bales were produced. In the production of rice Louisiana occupies first place, surpassing in 1908 Texas, which previously had occupied equal rank. The production of rice increased from 8,680,000 pounds in 1907, although the acreage decreased from 310,000. The number of farm animals has remained practically constant since 1900, except for an increase of 16 per cent. in the number of mules, and a decrease of 14 per cent. in the number of swine. The estimated value of the wool clip of 1908 was \$133,052.

The reports of sugar from 15 parishes for 1908 gave the production at 444,241.80 pounds of sugar and 430,981 barrels of molasses, while 21 other parishes made 35,833 barrels of syrup. The total sugar production of the State was estimated at about 55,000,000 pounds, and 540,000 barrels of molasses; 106,000 boxes of oranges, and large quantities of vegetables, fruits, nuts, etc., were grown in the State in 1908.

MANUFACTURES. Louisiana made very great progress in the extent and value of its manufacturing from 1900 to 1905. In 1905 there was invested in industries carried on in factories \$150,810,600, there were employed 55,859 wage-earners, and the products were valued at \$186,379,592, these figures being 49.5, 36.6 and 67.3 per cent. larger than in 1900. Of the wage-earners only 4,604 were women, and only 1,313 were children under 16. The value of the products of leading industries, and, in parentheses, the per cent. of increase over 1900, were: Refining sugar and molasses, \$73,786,659 (57.8); lumber and timber products, \$35,192,374 (103.5); cotton-seed oil and cake, \$13,187,608 (87.7); cleaning and polishing rice, \$10,718,311 (86.8); bags, other than paper, \$4,076,226 (18.4); and foundry and machine-shop products, \$3,149,209 (17.8 per cent. decrease). Louisiana ranked second in both 1900 and 1905 in sugar and molasses refining, and third in cotton-seed products. About 68 per cent. of the value of lumber and timber products was contributed by yellow pine, and 26 per cent. by cypress. New Orleans was credited with products valued at \$84,604,006.

EDUCATION. The Report of the Superintendent of Education for 1907 shows a total school population in the State of 496,801. There were enrolled in public schools, 243,731, of whom 163,603 were white, and 80,128 colored. The average attendance among the white children was 116,527, and among the colored, 57,097. There were employed 967 male teachers and 3,845 female teachers; 436 colored male teachers and 732 colored female teachers. The receipts for school purposes for the year ending December 31, 1907, were \$3,856,871.09, which included a balance from the year preceding of \$563,153.24. The disbursements for school purposes were \$3,481,275.59; leaving a balance on hand December 31, 1907, of \$392,569.33. The average salary per month for white male teachers was \$74.50; for female white teachers, \$49.

FINANCE. According to the biennial report of the State Treasurer for 1906-7, the total receipts for 1907 were \$6,628,502.01, and the expenditures, \$5,209,179.58, leaving a balance in the treasury on January 1, 1908, of \$1,419,322.43. The chief revenues were from the general funds, from the current school funds, from the interest tax fund, from the free school fund, and from the penitentiary fund. The chief expenditures were on account of the general fund, current school fund, interest tax fund and penitentiary fund. The bonds of the free school fund on April 1, 1908, amounted to \$791,830. The interest-bearing bonds outstanding for the State on April 1, 1908, amounted to \$11,108,300.

POLITICS AND GOVERNMENT. The most notable political event in the State in 1908 was the passage of the Locke anti-racing law by the Legislature on June 23rd. This measure, which makes bookmaking and kindred practice either within or without a race track a misdemeanor, had the support of the Governor, but met strong opposition in both houses of the Legislature. The racing interests, which are very powerful in Louisiana, strongly opposed the measure, and they were able to secure strong support in both houses. The strongest opposition to the bill came in the Senate, where, as in the case of the bill of the same character in New York, it was passed by the vote of one Senator who had risen from a bed of sickness to cast his vote. The effect of this act is to abolish public betting on races throughout the State. An aggressive attempt was made in the Legislature to pass a measure providing for State prohibition, but this having failed, an act was passed increasing the liquor license to \$1,000, and providing other regulations. Under the local option law, twenty-eight of the fifty-nine parishes of the State were "dry" in June, 1908. A law was passed by the Legislature prohibiting the sale of liquor on trains passing through the State. A progressive child labor law passed at this session of the Legislature. This measure raises the age limit from twelve for boys to the standard of fourteen for both boys and girls in manufacturing establishments of the State. Satisfactory evidence of the age of the child is required. A ten-hour day is provided for and night work is forbidden for boys under sixteen and girls under eighteen. Provisions were made also for proper sanitation and for the protection of employees against accidents and injuries. The act went into effect immediately on its passage. Senator S. E. McEnery was elected by the Legislature to succeed

himself, as a result of the election held on April 21st.

CONVENTIONS AND ELECTIONS. The Democratic primary election was held on January 28th. It resulted in the nomination of Jared Y. Sanders, the Lieutenant-Governor of the State, for Governor. At the State election held on April 21st, Sanders was elected by a majority of over 40,000. The Legislature elected was unanimously Democratic. Four constitutional amendments were adopted, the most important being one increasing the power of the State Railroad Commission, and another prohibiting foreign railroad corporations from carrying their cases to the United States Supreme Court. Several counties of the State adopted local option. In an election held on January 14th, the city of Shreveport was carried for prohibition after an exciting contest. Two conventions were held by factions of the Republican party to elect delegates to the National Convention. The so-called "Black and Tan" Convention met at New Orleans on March 5th, and elected delegates who were uninstructed. The "Lily White" Republicans met on May 11th, and instructed the delegates selected to vote for W. H. Taft for President. The Democratic State Convention met at Baton Rouge on June 3rd, and chose delegates instructed to vote for William J. Bryan for President. In the election of November 3rd, William J. Bryan carried the State by a majority of about 54,000 (Bryan, 63,568; Taft, 8,958; Debs, 2,538). The two important State offices at issue, Supreme Court Justice and Railroad Commissioner, were won by Democrats. All seven Democratic nominees for Congress were elected. A constitutional amendment exempting mortgages from taxation was passed.

OTHER EVENTS. On April 26th a tornado caused large loss of life and great damage to property in the State. In July trouble broke out between Italians and native laborers in Tangipahoa Parish, as the result of the blowing up of the home of an Italian by a mob. Rioting followed and five hundred Italians took refuge in a swamp, where they were besieged by an armed force of natives. Troops were dispatched to the scene on July 24th by Governor Sanders, and further violence was averted. A fire in New Orleans on August 30th destroyed property valued at over \$1,000,000. A railroad collision at Littlewood, a suburb of New Orleans, on November 11th, caused the death of eleven persons and the injury of over twenty. On February 14th, 72 delegates from 13 labor organizations were indicted at New Orleans by the Federal Grand Jury for interfering with the trade of the United States with foreign countries.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: A law was passed providing for the establishment by the State Board of Agriculture and Immigration of a branch experimental station at some suitable point in the rice belt of the southwestern part of the State for the purpose of carrying on scientific and experimental investigations with reference to the production of rice. A measure was also passed fixing a standard for cotton classification. A child labor law was passed. (See CHILD LABOR.) An act was passed making it a misdemeanor for any person connected with a public school to act as agent for or to receive gifts or commissions, directly or indirectly, from indi-

viduals or companies that manufacture, handle, or sell in the State any kind of school-book or apparatus. Measures were passed prohibiting gambling on horseracing. A law was enacted making it a misdemeanor to circulate false statements or reports concerning the financial condition of any bank organized under the law of the State. A commission for the conservation of natural resources was established and a Chair of Forestry in the State University was founded. Several important measures were enacted relating to insurance. A bureau of labor and industrial statistics was created, with a commissioner. Measures were passed requiring that mechanics employed on all State or public buildings or public works in cities exceeding 10,000 population, shall be citizens of the State, except under certain conditions. A State live stock sanitary board was created, with power and authority to regulate live stock sanitary matters. The selling or giving away of cocaine was forbidden. Laws were passed enlarging the power of the railway commission, and other important measures relating to railroads were enacted. Measures were enacted providing for a new registration of voters throughout the State, and the primary election law was amended.

STATE OFFICERS: Governor, J. Y. Sanders; Lieutenant-Governor, P. M. Lambtemont; Secretary of State, J. T. Michel; Auditor, Paul Capdeville; Treasurer, O. B. Steele; Attorney-General, Walter Guion; Superintendent of Education, T. H. Harris—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. A. Breaux; Associate Justices, A. D. Land, F. T. Nichols, Frank A. Monroe, O. O. Provosty; Clerk, T. McC. Hyman—all Democrats.

The State Legislature of 1909 is composed of 41 Democrats in the Senate and 116 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section Congress.

LOWELL, ABBOTT LAWRENCE. An American educator, born in Boston on Dec. 13th, 1856, a nephew of James Russell Lowell. He graduated at Harvard in 1877, and at the Law School there in 1880, and practiced law in Boston from 1880 to 1897, when he was appointed a lecturer at Harvard. In 1900 he became professor of the science of government at Harvard, a chair he held in 1908. When the resignation of President Charles W. Eliot (q. v.) was announced, Professor Lowell was mentioned as most likely to become his successor. His scholarly publications include: *Essays on Government* (1889); *Governments and Parties in Continental Europe* (1896); *Colonial Civil Service: the Selection and Training of Colonial Officials in England, Holland and France*, with Professor H. Morse Stephens (1900); *The Influence of Party Upon Legislation in England and America* (1902); and *The Government of England* (1908). See LITERATURE.

LUCCA, PAULINE. A German soprano, died in Vienna, on February 28th, 1908. She was born in that city on April 26th, 1841, studied with Uschmann and Levy, and, because of the poverty of her parents, was obliged at first to sing in the chorus at the Vienna opera. In 1859 she made her debut at Olmütz, as Elvira, in *Ernani*, and was very cordially received. The great beauty, flexibility and range of her voice (two and a half octaves), and her cleverness and originality as an actress, attracted the attention of Meyerbeer, who was searching Europe for a

singer equal to the rôle of Selika in his *L'Africaine*, and he trained her for the part, which she presented for the first time, and with great success, at Covent Garden, London, in 1865. Meanwhile she had sung various rôles at Berlin, and had been engaged there as court singer for life. She sang the rôles of Valentine (1863), Marguerite (1864), and many others, at Covent Garden, and became popular in England as she was also on the continent. She visited the United States in 1872-74, and repeated her European successes. Mme. Lucca was in her prime when she left the stage; she taught for a time, in Vienna, but abandoned it as thankless labor.

LUCHAIRE, ANDRÉ. A French historian and educator, died on November 15th, 1908. He was born at Paris in 1846, and graduated at the École Normale in 1869. After teaching at Pau and Bordeaux he became professor of history at Bordeaux in 1877. At the time of his death he was professor of mediæval history at the Sorbonne, Paris. His works include: *Review of the Texts of the Old Gascon Dialect* (1884); *History of Monarchical Institutions in France under the First Capetians* (2 vols. 1884); *The University of Paris under Philippe-August* (1899); *Innocent III.; Rome and Italy* (1904); and *Innocent III.; the Crusades of the Albigeois* (1905).

LUÍZ PHILIPPE, Duke of Braganza, and Crown Prince of Portugal. See CARLOS I., King of Portugal.

LUMBER. See FORESTRY.

LUTHERAN CHURCH. A religious denomination which includes the largest body of Protestants in the world and is the mother church of Protestantism. The church is scattered throughout the world, but is found principally in Germany, Sweden, Norway, Denmark, Finland, Eastern Russia, part of Austria-Hungary, Roumania, France, England, Australia and North and South America. As to principle, the church holds to the "pure Word of God" and the two Sacraments of Christ. Historically, it is conservative as compared with more radical Protestant bodies. Church government is not an essential and the church flourishes under congregational, presbyterian and episcopal forms. The first Lutheran minister came to North America in 1619. There were Dutch Lutherans in Manhattan in 1623. The great organizer of the church in the United States was Henry Melchior Muhlenberg, who arrived in 1742, and is known as the Patriarch of the Lutheran Church in America. He founded the ministerium of Pennsylvania, the Mother Lutheran Synod in this country, in 1748. It was a general body. The first attempt to combine the various Lutheran synods was made in 1820 by the organization of the General Synod. About the middle of the century great numbers of Lutherans came over from Scandinavia and Germany and filled up the territories of the Northwest and the West. The General Council, which is prevailingly English, but teaches the Gospel in German, Swedish and other languages, was founded in 1867. The Synodical Conference, prevailingly German, was founded in 1871. The United Synod South was founded in 1886. The four general bodies of Lutherans embrace two-thirds of the Lutherans in the United States. The chief independent synods are the United Norwegian Synod, the Joint Synod of Ohio and the German Iowa Synod. The total number of

Lutherans in America in 1908 was 2,052,239 embraced in 67 synods. There were 8,200 ministers and 13,372 congregations. The church supports 114 educational institutions, having property valued at \$8,264,800, and \$2,549,600 in endowment. In these institutions are 975 professors and 14,991 students. Of these 1,239 are in theological seminaries. The Lutherans maintain 198 benevolent institutions, with property and endowment valued at \$7,177,059. In these institutions 68,614 persons were cared for in 1908. There were 10 mission boards, which conduct foreign missions in India, Japan, Liberia, Africa, China, Madagascar, Persia, Alaska, Cuba, Porto Rico and South America. It is estimated that there are about 76,000,000 Lutherans in the world. Statistics relating to the various divisions in the United States are as follows:

GENERAL COUNCIL, 465,212 communicants, 1,546 ministers, 2,344 congregations, 316,177 Sunday school scholars; benevolent offerings, \$502,517; value of church property, \$22,255,549. The biennial convention will meet in Minneapolis beginning September 9, 1909.

GENERAL SYNOD. Communicants, 278,596; ministers, 1,325; congregations, 1,739; Sunday school scholars, 231,413; value of church property, \$17,425,174. The biennial convention meets at Richmond, Indiana, June 2d, 1909.

SYNODICAL CONFERENCE (German): Communicants, 672,049; ministers, 2,517; congregations, 3,174; Sunday school scholars, 63,043; benevolent offerings, \$634,648. The next convention meets at Seward, Neb., 1910.

UNITED SYNOD OF THE SOUTH: Communicants, 47,177; ministers, 224; congregations, 443; benevolent offerings, \$108,028; value of church property, \$1,427,025; Sunday school scholars, 30,308. The next convention meets at Winchester, Va., September 6th, 1910.

INDEPENDENT SYNODS: Communicants, 589,205; ministers, 2,588; congregations, 5,672; Sunday school scholars, 161,754; benevolent offerings, \$718,363.

Important events in 1908 were the consecration of the Krauth Memorial Library of the Theological Seminary at Philadelphia; the unification of the Home Missions of the General Council and the organization of a new English Synod in Canada; the entrance into Japan by the General Council and into South America by the General Synod and conferences in the Northwest looking toward the close union of a large number of Norwegian Lutherans in America.

LUTHER LEAGUE OF AMERICA. A religious organization connected with the Lutheran Church, formed in Pittsburg, Pa., in 1895. Its basis is the unaltered Augsburg Confession, and it receives into its membership any society of whatever name connected with a Lutheran organization or a Lutheran institution of learning. Its membership in 1908 was over 100,000 in twenty-five States, fourteen of which have permanent organizations. Its official organ is the *Luther League Review*, published in New York City, and edited by the Chairman of the National Executive Committee and First Vice-President, E. F. Eilert. The President of the League is William C. Stoeber, and the General Secretary, Luther M. Kuhns, Omaha, Nebraska.

LUXEMBURG. An independent neutral Grand Duchy of western Europe. Area, 998 square miles; population (1905), 246,455. Lux-

emburg, the capital, had 21,024 inhabitants in 1905. The production of iron ore in 1907 was 7,492,870 metric tons, valued at 17,568,000 marks; that of pig iron, 1,484,872 tons, valued at 82,914,000 marks (1 mark = 23.8 cents). The beer production in 1907 was 260,704 hectolitres. Luxembourg is included in the German Customs Union. The length of railway in 1907 was 326 miles; of telegraph line, over 1,062 miles. A canal connecting the Chiers and Moselle rivers, 31 miles long, to connect with the German, French, and Belgian waterway systems, is in project. The Grand Duchess Marie Anne, wife of the Grand Duke Wilhelm, became regent on November 13th, 1908. As a result of the elections for half the Chamber in June, 1908, the Clericals lost two seats, the Independents lost one seat, and the Liberals gained three seats.

LYNE, JOSEPH LEYCESTER (Father Ignatius). A Church of England mission preacher, monk and superior of Llanthony Abbey, died on October 10, 1908. He was born in Trinity Square Tower on November 23, 1837, and was educated at St. Paul's School and at Trinity College, Glenalmond. He was ordained in 1860, and became curate of St. Peter's Church, Plymouth. In 1870 he founded Llanthony Abbey, and in 1890 visited the United States, preaching in New York, Boston and Newport. Both in the United States and England his services were very largely attended, but also in both countries his doctrines aroused the hostility of the higher clergy. He was not permitted to preach in the Protestant Evangelical churches in Boston, and in New York City the question as to his status in the church aroused much discussion among the clergy and resulted in his bitter denunciation of Bishop Potter. In 1898 he was ordained priest in the Llanthony Abbey Church. He attracted considerable attention in 1904 by claiming the power to perform miracles. During the last few years of his life he refused to preach in the Anglican churches, because of the attitude of the bishops toward "rationalism."

McCLELLAN, GEORGE BRINTON. Mayor of New York, was successful in the action for the recount of the ballots cast in the municipal election of 1905, the jury being instructed to find that he had been elected Mayor over William R. Hearst, by a plurality of 2,791, a gain for Hearst over the official count of 863 (June 30, 1908). He was born in Dresden, Saxony, on November 23d, 1865, the son of Gen. Geo. B. McClellan; graduated at Princeton in 1886, and became a reporter for a New York newspaper. He was admitted to the bar in 1892, was president of the New York Board of Aldermen in 1893-94, and Member of Congress from 1895 to 1903. In 1903 he received the Democratic nomination for Mayor of New York, and was elected over Seth Low, and he was reelected in 1905 over W. R. Hearst, who ran on a platform demanding municipal ownership of public utilities. A cry of fraud was raised and after more than two years of effort a recount was obtained from the courts with the result indicated above. (See New York.) Shortly after his second election McClellan broke with the Tammany Hall organization. He opposed the nomination of Hearst for Governor in 1906, and refused to support him during the campaign. He is the author of *The Oligarchy of Venice*, and in 1908 was appointed Little Lecturer at Princeton University, succeeding Grover Cleveland.

McCOSH, ANDREW J. An American surgeon, died on December 2d, 1908. He was born in Belfast, Ireland, in 1858, a son of President James McCosh, of Princeton University, graduated at that institution in 1877, and at the College of Physicians and Surgeons in New York in 1880, and studied at the University of Vienna in 1882. He began to practice in New York City in 1883, and became surgeon to the Presbyterian Hospital in 1889, after having been clinical lecturer in surgery and professor of clinical surgery at Columbia University. Dr. McCosh did not specialize in any one line, but was known as a very skillful general surgeon. At the meeting of the International Medical Congress in 1908, he read an important dissertation on peritonitis. His death was due to injuries received in a carriage accident while answering a professional call in New York on November 28th, 1908.

MacDONALD, JAMES WILSON ALEXANDER. An American sculptor, died on August 14th, 1908. He was born at Steubenville, Ohio, in 1824, was apprenticed to a blacksmith, but ran away from home in 1841. He went to St. Louis, where he engaged in the publishing business. Meanwhile, he studied sculpture under Waugh, and in 1854 executed his first commission, a bust of Senator T. H. Benton. At the close of the Civil War he moved to New York, where he soon became famous for his portrait busts and statues. The best known of these are the statue of Fitz-Greene Halleck in Central Park, New York City (1877), the statue of General Custer at West Point, and the bust of Washington Irving in Prospect Park, Brooklyn. He also executed busts and statues of Charles O'Connor, Edward Bates, Bryant, Cooper, and Washington.

MacDOWELL, EDWARD ALEXANDER. An American composer and pianist, died on January 23d, 1908. He was born of Irish-Scotch parentage at New York, on December 18th, 1861. During his early youth he received some lessons from the pianist, Teresa Carreño, who was afterward to become one of the most notable interpreters of his music. In 1876, accompanied by his mother, he went to Paris and entered the Conservatory, where he studied the piano under Marmontel and theory and composition under Savard. One of his fellow pupils was Claude Debussy (q. v.). His talent for drawing, at this time, was almost equal to his musical gifts, and one of the instructors at the École des Beaux Arts, seeing one of his sketches, offered him three years free instruction in art. MacDowell finally decided, however, to continue his musical studies. Becoming dissatisfied with conditions at Paris, he went to Stuttgart in the fall of 1878, but finding conditions there equally irksome, went to Wiesbaden, where he studied for a few months under Louis Ehlert. His mother returned to America in 1879, and Macdowell entered the Conservatory at Frankfurt, where he studied the piano under Carl Heymann, and composition under Raff. Under these two teachers—who both recognized his real genius—he made great progress. When Heymann left the Conservatory in 1881, he recommended MacDowell as his successor. Failing to receive the appointment on account of his youth—he was only 19—he went to Darmstadt as head piano teacher at the Conservatory there. He also gave private lessons. In 1882, at Raff's suggestion, he visited Liszt at Weimar, and was cordially received by the venerable composer. Through Liszt's influence, MacDowell played his

own First Modern Suite for the Piano at the 19th convention of the Allgemeiner Deutscher Musik-Verein on July 11, 1882. The suite was published the following year, and was the first of his works to appear in print. MacDowell remained at Wiesbaden, teaching and composing, until the summer of 1884, when he returned to America, where he married Miss Marion Nevins, a former pupil. They went to London the same year, and thence back to Frankfort. Soon afterwards they moved to Wiesbaden, where they lived until 1888, when they returned finally to America, settling in Boston.

At this time MacDowell, already famous abroad as a pianist and composer, was comparatively unknown in the United States. His first public appearance in America was on Nov. 19, 1888, at Chickering Hall, Boston, where he played part of his *First Modern Suite*. During the next eight years his fame grew rapidly. On Jan. 10, 1890, the Boston Symphony Orchestra played his symphonic poem *Lancelot and Elaine*; the same orchestra played *Hamlet and Ophelia* on Jan. 28, 1893. On Jan. 23, 1896, the Boston Orchestra placed his *Indian Suite* and *First Piano Concerto* on the same programme. In the spring of 1896 he became the head of the newly founded department of music at Columbia University. But the conditions of academic life and work were not to his taste; and on Jan. 18, 1904, after eight years of what he deemed almost fruitless labor, he resigned. He now resumed his private piano classes, but the strain of overwork had already begun to tell. He commenced to show signs of nervous breakdown in 1905; his mind gradually failed. He died in New York City, in his 47th year.

His published works number sixty-two, comprising nearly three hundred separate pieces. The best of these are: Op. 10, *First Modern Suite* for piano (1883); Op. 14, *Second Modern Suite* (1883); Op. 15, *First Concerto*, in A-minor (1885); Op. 23, *Second Concerto*, in D-minor (1890); Op. 30, *Two Fragments from the Song of Roland* (symphonic poem for orchestra, 1891); Op. 41, *First Suite* for orchestra (1891-93); Op. 45, *Sonata Tragica* for piano (1893); Op. 48, *Second (Indian) Suite* for orchestra (1897); Op. 50, *Second Sonata (Erica)* for piano (1895); Op. 51, *Woodland Sketches* for piano (1896); Op. 55, *Sea Pieces* for piano (1898); Op. 56, *Four Songs* (1898); Op. 59, *Fourth Sonata (Keltic)* for piano (1901); and Op. 62, *New England Idyls* for piano (1902). Consult: Hughes, *Contemporary American Composers* (1900); and Gilman, *Edward MacDowell* (1909).

MACEDONIA. SITUATION AT THE BEGINNING OF 1908. Macedonia, which lies chiefly in the three vilayets or provinces of Kossowo, Monastir and Salonika, has no separate official entity, but forms a part of the Turkish Empire, to which it was assigned by the Treaty of Berlin (1878). The anarchy which has prevailed for several years past continued during the first half of 1908, showing itself at intervals in massacres, assassinations and pillage. In 1907 it had culminated in the murder of Boris Sarafoff, the leader of the so-called Macedonian Committee of Freedom. During that year it was estimated by Sir Edward Grey that under the ineffective reform administration the murders had averaged some 200 a month. The reform scheme had been formulated by the Mürz-

steg programme of 1903, agreed upon by Austria and Russia. In 1897 the Austrian Emperor had visited St. Petersburg, and on April 29th in that year the Austrian and Russian foreign ministers issued a joint note to the Balkan States, saying that the two Powers would act together for the maintenance of peace and the *status quo*. At the end of 1897 Count Goluchowski explained this agreement as meaning that Austrian and Russian interests in the Balkans were harmonious and that each repudiated all thought of conquest or of securing preponderant influence. Pursuant to this policy of concerted action in the Balkans, the two Powers agreed on the reform programme of Mürzsteg, which demanded a system of foreign control including civil agents and a special force of gendarmes under foreign officers to put the reforms into execution. The disorders continued, however, and in 1905 conditions were so bad that the English Balkan Committee, headed by Lord Lansdowne, arranged with Austria and Russia for a new scheme providing for international financial control. No improvement, however, seemed to result from these measures, and early in 1908 the British Foreign Minister, Sir Edward Grey, offered additional proposals for reform. The chance of an effective coöperation between the powers in Macedonia, however, was endangered by the action of Austria in the matter of the Novi-Bazar Railway.

THE AUSTRIAN RAILWAY PROJECT. On Jan. 27, 1908, Baron von Aehrenthal, the Austro-Hungarian Minister for Foreign Affairs, announced that his government had been authorized by the Porte to complete a railway across the Sanjak of Novi-Bazar, from Sarajevo in Bosnia to Mitrovitza, which would connect Salonika directly with Vienna; and that the Porte had been requested to authorize the preliminary work on the line from Mitrovitza to Uvatz. For two or three weeks after this announcement, the Russian press attacked the project, and a Russian counter-project was proposed for a Russian-built line uniting the Danube with the Adriatic and crossing Serbia and Bulgaria. The Austrian government declared that it would offer no objection to such a line. In treating separately with the Porte in this matter, Austria had disregarded the Austro-Russian agreement of 1897, and Baron von Aehrenthal declared at the session of the Austrian Herrenhaus that this agreement was at an end. His action was regarded as a proof of a new Austrian policy in the Balkans, looking to national expansion. It was thought to have a serious bearing on any possible settlement of the Macedonian question, for having these separate interests with Turkey, Austria was not likely to insist on measures of reform which were offensive to the Porte. To be sure, the new line was in the region in which Austria was authorized by the Treaty of Berlin to maintain garrisons and establish military and commercial roads. Technically there was no denying her right. But the press complained bitterly of her course as endangering coöperation in the Balkans, and especially as enhancing the difficulty of the reform administration in Macedonia. Von Aehrenthal's defense was that the Austrian policy kept economic questions distinct from political, and that this was purely an economic affair, the railway having no other purpose than the promotion of the commercial interests of the lands

through which it passed. To this critics replied that already injurious political effects were manifest and that the road moreover was of great military importance, providing an all-German route from Vienna to Salonika, and offering the means of military concentration and occupation.

FURTHER REFORM PROPOSALS. Meanwhile attempts had been made by the Powers to improve the Macedonian situation. On Dec. 22d, 1907, they presented a joint note to the Porte for the renewal of the mandates of the reform officials in Macedonia for seven years. To this the Porte replied in Jan. 1908, that this could be granted only on condition that the officials entered the Turkish service, but in March the Porte agreed to the renewal of the mandates and accepted Italy's nomination of General Count di Robilant as Commander of the gendarmerie, to succeed General de Georgia. Early in the year there was an important discussion of the Balkan question in the British House of Commons, and Sir Edward Grey answered the criticism that had been brought against him on the score of inaction in the Macedonian difficulties. He said that the government had done everything possible, but that isolated action was out of the question and would have been unprofitable to the Macedonian Christians and led to European complications. He defined the attitude of the British government toward the Austrian railway scheme as one of "benevolent neutrality." He recognized the commercial advantages of the railway but deplored its effect in rousing apprehensions and in seeming to endanger the cause of Macedonian reform. Sir Edward Grey's new scheme of reform comprised the appointment of a Governor General by the Sultan with the consent of the Powers; all Macedonian officials to be subject to him. It was announced in March that the British reform scheme was not acceptable to the other Powers, and that Russia was at work on an alternative proposal. In July the joint Anglo-Russian proposal containing the Russian modifications of Sir Edward Grey's scheme but keeping its essential features was announced in the press as follows: "The organization of flying columns to suppress the rival bands; the appointment by the Powers of a Governor General for seven years with extensive powers including the selection of subordinates and the primary preparation of the Macedonian budget for local needs." While this question of further reforms was pending between the Powers, the triumph of the Turkish revolution and the publication of the Sultan's decree restoring the constitution solved, for the time being at least, the problems upon which the governments were at work.

CONDITION OF THE COUNTRY. Down to this time murders and other crimes of violence had occurred at short intervals. Early in May, Kamilakis, the leader of the Greek band involved in the outrage at Dragosh of Dec. 28th, 1907, was condemned to death. On May 27th, a Servian band attacked a Bulgarian village, burning their houses and killing several persons. On May 27th, fifteen Bulgarians were massacred by a Greek band at the gates of Salonika. On June 6th, the Bulgarians murdered a priest in a Greek monastery, a Greek woman and two children. There were further atrocities on June 15th and 17th on the part of the Greeks and Bulgarians, who attacked villages, burned houses

and killed numbers of inhabitants. In July matters seemed to be growing worse; the Greek and Servian bands having apparently joined against the Bulgarians gave signs of renewed activity; political crimes were on the increase, and assassinations frequent, the Bulgarian assassinations being especially numerous. Such was the condition of the country when the news of the Sultan's decree restoring the constitution reached Macedonia. Its effect was almost immediate. Quiet was restored and a number of the hostile bands surrendered. The problem of adjustment under the new régime, however, was difficult. It was complicated by rivalries among the Bulgarians and the difficulty of forming an agreement with the Young Turks. A centralized system was opposed by the Bulgarians, who feared a parliament in which the majority of the Christian element would be non-Bulgarian and in which the majority of the entire parliament would be ignorant of the needs of Macedonia. Though the Bulgarians are the largest element in the Macedonian population, they are greatly exceeded in number in the empire by the Greeks, whose Turkish population is much larger than that of the Hellenic kingdom. A Committee of Conciliations consisting of twenty-one members was appointed to consider the questions at issue between Bulgarians and Young Turks. The Bulgarians desired the retention of the foreign financial commission which was formed in 1905 through the efforts of Lord Lansdowne, and which drafts the budget and superintends the tax collections. The presence of this commission and in fact the need of foreign control in Macedonia had been humiliating to the Young Turks and was cited as one of the causes of the revolutionary movement. However, they had latterly shown themselves more friendly toward the foreign agents. In August preparations began for the new elections. See TURKEY.

MCGILLICUDDY, DANIEL F. A Roman Catholic clergyman and the first American known to have penetrated Tibet, died on July 30, 1908. He was born at Worcester, Mass., about 1860, attended Holy Cross College and the Grand Seminary at Montreal, and was ordained a priest in 1884. In 1895 he became rector of St. Stephen's Church, Worcester, which charge he held until his death. He was a strong temperance advocate, being at one time president of the Catholic Total Abstinence Union, and was also an ex-president of the Springfield Diocesan Union. During his life, he travelled extensively, visiting especially those countries and regions which were little known. His last exploration was in 1906, when he visited Tibet with a party of British Army officers. They were permitted, however, to go only as far as Gyamtse.

MCGILL UNIVERSITY, Montreal, Canada. An institution of higher learning founded in 1821. The attendance in 1907-8 was 1481. In the autumn of 1908 it was 1769, divided as follows: Arts, 501; applied science, 589; medicine, 331; law, 41; graduate school, 39; McDonald College, where instruction is given in teacher training, household science, and agriculture, 268. Of the whole number of students, 396 were women. There were 274 officers of instruction. The income for 1907-8 was \$575,000; the endowment, \$5,602,238, and the value of the grounds, buildings, and equipment about \$6.

530,000. During the summer of 1908 a new engineering building was completed at a cost of \$500,000, and good progress was made with the new medical building, which is to cost about \$600,000, and which is, in part, to be ready for use at the beginning of the session of 1909-10. The library contains 140,000 volumes. The university has graduated 5353 persons, of whom 4430 are living. The Principal is W. Peterson.

MACHINE GUNS. See MILITARY PROGRESS.

MACK, NORMAN EDWARD. Chairman of the Democratic National Committee during the presidential campaign of 1908, was born at West Williams, Ontario, on July 24, 1855. In 1879 he founded the Buffalo *Sunday Times* on a small capital and made it a success. A few years later he founded the *Evening Times*, which he made a power in Western New York. He was always a Democrat, and in 1896 his paper was one of the few dailies in New York State to support Bryan. He was elected a member of the Democratic National Committee in that year, and re-elected in 1900, 1904, and 1908. He has been identified with the Bryan wing of the party, and in 1908 was selected by Mr. Bryan to manage his campaign. See PRESIDENTIAL CAMPAIGN.

MACKAY, DONALD SAGE. An American clergyman, died on Aug. 27, 1908. He was born at Glasgow, Scotland, on November 20, 1863, and graduated at the Glasgow University in 1885 and at New College, Edinburgh, in 1889. In 1890 he came to the United States and entered the Congregational ministry. He was pastor of the First Congregational Church at St. Albans, Vt., from 1890 to 1894, and of the North Reformed Church at Newark, N. J., from 1894 to 1899. Since 1899 he had been pastor of the Collegiate Church of Saint Nicholas, New York City. He was charged with heresy by the Iowa Classis in 1905 because of an article he had contributed for the *Christian Intelligencer*. This article enumerated some of the causes which, in Dr. Mackay's opinion, accounted for the apparent increasing skepticism regarding the belief in a personal God. In this connection Dr. Mackay made special reference to the attending results of the recent legal controversy between the two factions of the Free Church of Scotland. In 1906 Dr. Mackay was elected president of the General Synod of the Reformed Church in America. He received the degree of D.D. from Rutgers College in 1905 and that of LL.D. from Hope College, Mich., in 1906. He was the author of *Collegiate Sermons* (1906).

M'KENNA, REGINALD. A British statesman, was appointed First Lord of the Admiralty in the British Cabinet in succession to Lord Tweedmouth on the reorganization of the Cabinet in April, 1908. He was born in London on July 6, 1863, and after graduating at Trinity Hall, Cambridge, was admitted to the bar in 1887. Since 1895 he had represented North Monmouthshire in the House of Commons. See GREAT BRITAIN.

MADAGASCAR. An island in the Indian Ocean, off the southeast coast of Africa, a French colony since 1896. The area, including the few adjacent islands, is estimated at 228,000 square miles. The population in 1906 numbered 2,706,661, including 7606 French, 2088 other Europeans, 3602 Asiatics, 1978 Africans, and 2,690,381 Malagasy (1,301,716 male and 1,388,665 female). The most numerous Ma-

lagasy peoples are the Hova, 847,480; the Betsileo, 408,024; the Betsimisaraka, 288,159; the Tanala, 156,720; the Sakalava, 155,126; and the Bara, 140,450. Antananarivo, the capital, had 69,767 native and 2002 European inhabitants in 1906; Tamatave, on the east coast, the principal port, 7026; Majunga, the chief port on the northwest coast, 7910. There are about 450,000 Protestants and 50,000 Roman Catholics. In 1906 there were 590 schools, with 1305 teachers and 48,804 pupils.

PRODUCTION. From 1896 to 1905 the government made 2653 concessions of land, aggregating 493,436 hectares (1 hectare = 2.47 acres). The area under cultivation in 1906 embraced 751,687 hectares, of which 28,233 were owned by Europeans. The agricultural products include rice, manioc, sugar, coffee, cotton, cacao, vanilla, tobacco, cloves, sweet potatoes, rubber, etc. Owing to the increased production of rice, its importation has almost entirely ceased; in 1907 the exports of rice amounted to 2204 tons, and its imports, 75 tons. The export of india rubber decreased from 7,538,000 francs in value in 1906 to 5,243,000 francs in 1907—due principally to the fall in the price of rubber, but partly also to the imposition of an export duty of 4 cents on the pound. In the northern provinces plantations of from 700,000 to 800,000 trees have been almost entirely abandoned, owing partly to the above-mentioned causes, and partly also to the difficulty of obtaining labor in consequence of the more remunerative employment offered to the natives in the recently formed mining camps. The yield of vanilla and coffee in 1908 was reported exceptionally good. Silk culture is encouraged. In 1906 there were ginned 158,993 pounds of cotton. There are 2,860,000 cattle, 264,000 sheep, 63,000 goats, 479,000 pigs, and a few horses, asses, and mules. The forests yield many valuable woods, rubber, gums, resins, medicinal plants, and trees furnishing material for textile, tanning, and dyeing purposes. The minerals include gold, silver, copper, lead, zinc, antimony, iron, manganese, nickel, sulphur, graphite, and lignite. Valuable stones are among the exports. The gold production in 1906 was 2,255,108 grams. In 1908 auriferous soil of a very promising kind was discovered near Tamatave, a district hitherto neglected by prospectors. In a few weeks there were extracted several kilograms of gold, including one nugget weighing nearly 500 grams. In the Antsirabo district, long known for its gold deposits, primitive methods of working are still in vogue. Coal and petroleum were also reported to have been discovered in 1908.

COMMERCE AND COMMUNICATIONS. The imports in 1907 amounted to 25,129,611 francs, of which 20,659,763 francs was from France and 778,930 from French colonies; the exports, 27,863,427 francs, of which 18,891,392 francs was to France, and 874,404 to French colonies. The principal imports are textiles, over one-half the total, beverages, metal goods, and coal; the principal exports are gold, rubber, hides, raffia, cattle, wax, and straw hats. There are few roads and there is little wheeled traffic. A highway of 217 miles is being constructed from Antananarivo to the large lake of Alaotra, in the north-central section of the island, which serves as a natural source of irrigation for extensive rice fields. A survey has been made for a highway of about 200 miles from Tamatave into the district of Ambatondrazaka, in

the north centre, a rich agricultural, timber, and rubber district. A railway is being constructed from Tamatave to Antananarivo, 168 miles, of which 121 miles were completed in 1908; government automobiles for mail and passengers were running on the uncompleted portion of the road. A canal of 22 miles between Vatomandry and Marosika, on the east coast, was completed in 1908 by joining a number of lagoons. There are over 3620 miles of telegraph line. A postal service extends throughout the island. A cable connects with Mozambique.

GOVERNMENT, ETC. The administration is in the hands of a Governor-General, assisted by a consultative council. Civil administration prevails in 19 provinces or districts, military administration in 5 districts or territories. The different races enjoy local autonomy. The army of occupation numbers about 13,000, two-thirds natives, its cost being borne by the French budget. The police and militia are maintained by the colony. For 1907 the budget balanced at 30,033,000 francs. The revenue is derived mainly from a personal tax, taxes on land and houses, customs, and public lands. Its debt in that year stood at 101,390,000 francs. In the budget of 1908 the sum of 6,000,000 francs has been assigned to expenditure on public works, including 38 schoolhouses, municipal waterworks, wharves and quays, the dredging of rivers, etc. The expenditure of France on Madagascar in 1908 was fixed at 18,586,675 francs, the whole of it for military purposes. Madagascar is not represented in the French Chamber.

MAIGNAN, ALBERT. A French decorative and historical painter, died on Sept. 29, 1908. He was born in Beaumont, France, on Dec. 15, 1844, and received his artistic education from Noël and Luminais. He was awarded a medal of the first class at the Salon of 1879, and was decorated with the cross of the Legion of Honor in 1883. His "Pope Boniface VIII. at Agani" is in the Metropolitan Museum of Art, New York City. The latter part of his career was devoted almost entirely to mural and decorative painting. His best works of this class are the decorations in the railway terminus at Lyons, and upon the walls and ceiling of the Opéra Comique at Paris. At the time of his death he was engaged upon the cartons for a set of eight Gobelin tapestries to be hung in the Senate Chamber, in Paris.

MAINE. One of the North Atlantic States of the United States. Its area is 33,040 square miles. Its population in 1908, according to a Federal estimate, was 721,170. The largest cities are Portland, with an estimated population in 1905 of 58,000; Bangor, 26,000; Lewiston, 24,365, and Biddeford, 18,000. The capital is Augusta.

MINERAL PRODUCTION. In the output of stone of various sorts Maine ranks high among the States. In 1907 stone products were quarried to the value of \$2,147,770, as against a value of the same products in 1906 of \$2,562,021. Of the stone quarried, granite was the chief, the value of this being \$2,146,420 in 1907. In the production of granite Maine ranks second among the States, being surpassed only by Massachusetts. In the production of slate Maine is also conspicuous, ranking after Pennsylvania and Vermont. The production in 1907 was valued at \$236,606, as against a value in 1906 of \$233,-

681. Maine has long been conspicuous among the other States in the production and sale of mineral waters. There were produced in 1907 1,161,832 gallons, valued at \$414,300. There was produced in the State in 1907 lime amounting to 159,494 short tons, valued at \$747,947, as compared with 222,208 short tons, valued at \$1,066,275, in 1906. Other important mineral products are clay products, feldspar, and small quantities of copper, precious stones, sand, and gravel. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1906 was \$4,379,073, as compared with a value in 1906 of \$5,227,000.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 567,000 bushels, valued at \$476,000, from 14,000 acres; spring wheat, 188,000 bushels, valued at \$196,000, from 8,000 acres; oats, 4,046,000 bushels, valued at \$4,224,000, from 119,000 acres; barley, 224,000 bushels, valued at \$121,000, from 8,000 acres; buckwheat, 690,000 bushels, valued at \$518,000, from 23,000 acres; potatoes, 26,100,000 bushels, valued at \$15,921,000, from 116,000 acres; hay, 1,260,000 tons, valued at \$17,640,000, from 1,400,000 acres. The State occupied in 1908 the second place in the production of potatoes, being surpassed only by New York. It is notable that the 26,100,000 bushels of potatoes produced in Maine were grown on 116,000 acres, while the 24,850,000 bushels produced in New York were grown on 425,000 acres. The acreage devoted to hay is greatly in excess of that devoted to all other farm products. The production of potatoes increased from 17,110,000 bushels in 1907, while the production of hay decreased from 2,100,000 tons. The numbers in thousands of farm animals in 1909 were as follows: Horses, 117,000; dairy cows, 179,000; other cattle, 145,000; sheep, 262,000; swine, 66,000. All classes show an increase over the numbers in 1900, the greatest being a 10 per cent. gain in the number of horses. The estimated value of the wool clip in 1908 was \$319,920.

MANUFACTURES. The census of 1905 reported 3145 establishments classed as factories, with \$143,707,750 capital, 74,958 wage-earners, and products valued at \$144,020,197, these figures exceeding those of 1900 by 9.3, 26.1, 7.2, and 27.5 per cent., respectively. Of the wage-earners, 16,825 were women, and only 1471 children under 16. The values for the leading industries, with the per cent. of increase over 1900, in parentheses, were: Paper and wood pulp, \$22,951,124 (73.6); lumber and timber products, \$17,937,683 (50.3); cotton goods, \$15,405,823 (5.3); woollen goods, \$13,989,600 (20.1); boots and shoes, \$12,351,203 (.4); foundry and machine shop products, \$4,767,025 (44.5); flour and grist mill products, \$3,932,882 (12.5); worsted goods, \$3,609,990 (102.9); wooden shipbuilding, \$3,272,331 (21.9). Other mentionable industries are the tanning and finishing of leather, marble and stone work, planing mill products, canning and preserving vegetables, and the manufacture of wooden packing boxes. Portland was credited with products valued at \$9,132,801, Lewiston with \$8,527,649, Biddeford with \$6,948,122, and Auburn with \$6,407,157.

FISHERIES. The total value of the fish taken in 1908 was \$4,291,743, from a yield of 266,517,649 pounds. The lobster catch was 17,397,342 pounds, valued at \$1,888,468. Next in point of production and value was groundfish, of which 46,094,226 pounds were taken, valued at \$916,377. The herring catch was 61,553,900 pounds, valued at \$540,896. There were 36,330,005 pounds of clams, valued at \$602,196. The salmon catch was 40,881 pounds, valued at \$8,643. Among other fish taken in large quantities were shad, scallops, smelts, sword-fish, hake, and tomcod. There were 11,706 men employed in the fisheries during the year, and the value of the plants, boats, yield, etc., was \$3,628,000.

EDUCATION. There has been a rapid extension of expert supervision among the smaller towns of the State. This extension has been going on under the terms of a very favorable law which provides that the State shall pay two-thirds of a superintendent's salary in a union of towns to the limit of \$800 on the part of the State. There are now 42 supervisory unions, including 108 towns. These, with the cities, place nearly 50 per cent. of the school population under expert supervision. Considerable progress has been made in the standardization of secondary school courses. For the year ending June 30, 1908, the total school population (ages 5 to 21) was 210,817, and the total enrollment was 132,533. The average length of the school year was 25 weeks 4 days. The average monthly salary of male teachers was \$39.34 and the average weekly salary of women teachers was \$7.67. Through a recent enactment of the Legislature the income from the State funds to the schools will be increased Jan. 1, 1909, by about \$200,000. This makes the total from State sources for all educational purposes nearly a million and a quarter. From both State and local sources the amount available will be approximately \$2,400,000. The total enrollment at the State Normal Schools at Farmington, Gorham, Castine, and Presque Isle was 1005.

FINANCE. The report of the treasurer for the year ending Dec. 31, 1907, showed a balance in the treasury on Jan. 1, 1907, of \$597,971.02. The receipts for the year were \$3,306,733.24 and the expenditures were \$3,425,236.80, leaving balance on hand Jan. 1, 1908, of \$479,467.46. The total indebtedness of the State outstanding on Jan. 1, 1908, was \$713,000. The chief receipts were from the new corporations, from the State taxes, a tax on railroad companies and taxes on savings banks. The chief expenditures were for schools, for the support of the State charitable and correctional institutions and for the public debt. The estimated receipts for the year 1908 were \$2,833,033 and the estimated expenditures \$2,814,915.23.

CHARITABLE INSTITUTIONS. In 1905 the government transferred the Arsenal property, near Augusta, to the State of Maine, to be used for asylums for the insane. A building for the criminal insane was approaching completion on this site in the latter part of 1908. Widow's Island in Penobscot Bay was also transferred to the State by the government in 1905. A site was purchased in Cumberland County for a school for the feeble-minded in 1908.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in 1908. The State lost two of its representatives in Congress in 1908, one by resignation and one by death. Charles E. Littlefield resigned on Mar. 22, and

engaged in the practice of law in New York city. Mr. Littlefield was first elected to the 56th Congress in 1899 to fill a vacancy caused by the death of Nelson Dingley, and he was repeatedly reelected. He was considered one of the strongest members of the House. Llewellyn Powers, who was elected in 1901 to fill the vacancy caused by the death of Charles A. Boutelle, and was reelected to the 58th and 59th Congresses died on July 28. The vacancies were filled in the State election held on Sept. 14. (See below.) Frank E. Guernsey was elected to succeed Mr. Powers, and John P. Swasey to succeed Mr. Littlefield.

CONVENTIONS AND ELECTIONS. The Republican State Convention met on April 30, to select delegates to the National Convention. The delegates chosen were uninstructed, but "a resolution of preference" for William H. Taft was adopted. The Democratic District Conventions chose 12 delegates uninstructed and unpledged, but favorable, with one exception, to William J. Bryan for president. On June 30, Bert M. Fernald of Poland was nominated for governor by the Republicans, and on July 15, Obadiah Gardner received the Democratic nomination. The State campaign was a spirited one from the local issues involved. Mr. Fernald declared himself in favor of the strict enforcement of the prohibition law, and opposed to the resubmission of the question to the people. Mr. Gardner was in favor of resubmission, which is a tenet of the Democratic party of the State. The September elections in Maine are always anticipated with unusual interest in Presidential election years, as furnishing a possible indication of the trend in the rest of the country. In 1908 the State proved a poor prophet, for the Republican majority on Sept. 14 was only 8,000, as compared with a majority of about 20,000 in 1904. The falling off was due entirely to local causes. The entire Republican ticket was elected. A curious feature of the election returns was that while, in 1906, the cities of the State cast their votes against the prohibition law, in 1908 this condition was reversed. This was probably accounted for by the fact that Mr. Gardner was a former Master of the State Grange, and has strong supporters in the country districts. In the election of Nov. 3, William H. Taft received a majority of 31,240 votes over William J. Bryan (Taft, 67,120; Bryan, 35,880; Chafin, 1,487; Debs, 1,758).

OTHER EVENTS. On Jan. 24 a fire in the wholesale business district of Portland destroyed the City Hall, valuable records, the Greenleaf Library and other property valued at \$625,000. On Jan. 27, the city was again visited by fire which did much additional damage. Biddeford and Saco also suffered severely from fire during the year. On Sept. 14, fire in lumber yards in these cities caused a loss of over \$300,000. In September and October great damage was caused in several sections of the State by forest fires. A fire on Dec. 4 destroyed the piers of the Grand Trunk Railway, Portland, and the cargoes of several steamships, causing a loss of about \$600,000.

STATE OFFICERS: Governor, Bert M. Fernald; Secretary of State, A. I. Brown; Treasurer, P. P. Gilmore; Adjutant-General, A. B. Farnham; Attorney-General, H. E. Hamlin; Superintendent of Education, Payson Smith; Insurance Commissioner, S. W. Carr, all Republicans.

JUDICIARY. Supreme Judicial Court: Chief Justice, L. A. Emery; Associate Justices, L. C. Cornish, Albert M. Spear, W. P. Whitehouse, G. E. Bird, Albert R. Savage, A. W. King and Henry C. Peabody—all Republicans except Bird; Clerks, E. F. Thompson, C. W. Jones, C. F. Ewert, Republicans.

The State Legislature of 1909 is composed of 23 Republicans and 8 Democrats in the Senate, 100 Republicans and 51 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section Congress.

MALARIA. Doubt was cast upon the value of quinine as a prophylactic in malaria by E. R. Stitt, surgeon in the U. S. Navy. He quotes Celli's figures as to the relative merits of quinine and mosquito protection as prophylactics. Celli says that when both quinine and protection were used 1.75 per cent. of those exposed to infection developed malaria. Under mosquito protection alone 2.5 per cent. were infected; under quinine prophylaxis alone 20 per cent. were attacked; and under no protection at all 33 per cent. developed the disease, showing only a difference of 13 per cent. between absolute disregard of preventive measures and quinine prophylaxis. Stitt gives the case of a battalion of marines who were stationed on the Isthmus of Panama for one month. During this period 9 grains of quinine were given each man daily as a prophylactic. On the trip home 215 of the 298 men developed acute malarial paroxysms, many of the cases being very severe. The resumption of quinine, which had been temporarily stopped, had little effect in checking the outbreak. This is opposed to the general experience that malaria responds readily and promptly to quinine. The writer deduces that the malarial parasites develop a resistance to the drug, and says that he has seen active motile *amæba* in the stools of patients undergoing quinine irrigations of the colon. This theory finds support in the recent work done in Ehrlich's laboratories, where it was discovered that when mice infected with trypanosomes were not given sufficient doses to destroy the organisms those protozoa developed a resistance to the drug given, and, moreover, that this resistance was retained through numberless generations. After passing through 144 mice in a period of fourteen months, these trypanosomes still retained their immunity to the exciting drug. Browning, who conducted these researches, experimented with atoxyl, parafuchsin, and trypan blue. Woldert, in endeavoring to explain why malaria breaks out in the absence of mosquitoes and in seasons when this insect is inactive, says that the malarial parasite may lie dormant in the blood for many months (during which time individuals may change their abode), without producing symptoms. To this circumstance he adds observations on the life of mosquitoes. These insects may live in the temperate zone through the winter months. Specimens have been kept alive for months. The author found larvæ of anopheles living on the surface of water in Texas after freezing weather. Mosquitoes have been found within 500 miles of the North Pole. Mircoli believes that the fever of malaria is a result of the destruction of the red corpuscles of the blood by the malarial parasite, rather than any specific action or influence of the parasites themselves. The febrile attack may occur when there is not one *amæba* in the blood, and it can be produced at

will by chilling the body, or by trauma. His experiments showed that the destroyed red corpuscle acts like a severe poison when reinjected into the animal, inducing not only fever, but trophic and dynamic disturbances.

MALET, EDWARD BALDWIN. A British diplomat, died on June 29, 1908. He was born at The Hague, where his father, Sir Alexander Malet, was Minister in 1837, and entered the diplomatic service in 1854, being attached to the British legations at Brussels, Rio de Janeiro, Washington, Lisbon, Constantinople, Paris, and Peking, at different times from that year until 1873. He was chargé d'affaires at Athens in 1873-75, secretary to the embassy at Rome from 1875 to 1878, plenipotentiary to Constantinople in 1878-79, and in the latter year was appointed consul-general and minister plenipotentiary in Egypt, serving during the time of the Arabi rebellion. He was appointed ambassador to Germany in 1884, and retained this position until his retirement in 1895. In 1900 he became a member of The Hague Court of Arbitration.

MALTA. An island in the Mediterranean, a British possession. Area, 91.6 square miles; including Gozo, Comino, and other islets, 117 square miles. Total population (1908), 209,974, exclusive of the military. Valetta, the capital and chief British naval and coaling station in the Mediterranean, has about 50,000 inhabitants. About 41,000 acres were in cultivation in 1907-8. The principal products are wheat, cummin, and cotton; in 1907-8 the production of lint only was 221,523 pounds. Of live stock there were in 1906-7 10,876 horses, asses, and mules; 6022 cattle, 19,901 sheep, and 19,231 goats. The imports and exports in 1907-8 amounted to £1,236,530 and £159,436 respectively, besides the transit trade, amounting to £5,747,059 and £5,754,102 respectively. The port of Valetta was entered in 1907-8 by 2354 vessels of 3,792,495 tons. There were 8 miles of railway and 65 miles of telegraph. The British garrison in 1908-9 numbered 7639. The revenue and expenditure in 1907-8 were £438,348 and £454,669 respectively. The Governor in 1908 was Lieut.-Gen. Henry Fane Grant.

MANCHURIA. A dependency of the Chinese empire. Area, about 363,000 square miles; population, estimated at from 5,500,000 to 16,000,000. The principal cities, with their estimated populations, are: Tsitsihar, 30,000; Changchun, 80,000 (2000 Japanese); Mukden, 150,000 (3000 Japanese); Newchwang, 50,000; Yingtse, 60,000 (6000 Japanese); Antung, 21,000 (5000 Japanese); Fengwangcheng, 18,000 (200 Japanese); Takushan, 8000; Tatungkow, 6000. The number of Japanese in South Manchuria in 1908 was 55,466. For details respecting the leased Liao-tung peninsula, see KWANTUNG.

EDUCATION. In the southern province of Shengking, or Fengtien, there have been established over 1450 primary and middle schools, partly by the government and partly by the people. Towards the end of 1908 it was reported that Viceroy Hsu, of this province, was raising a fund for the establishment of an agricultural school and had memorialized the imperial government for the establishment of fishery schools.

PRODUCTION. In the north are deposits of gold, both quartz and placer, silver, copper, lead, iron, coal, asbestos, and soda. Some mines are

worked by Chinese officials, but mostly by native companies and small capitalists. The iron deposits some 50 miles to the north of Mukden are worked to meet local requirements. Gold is obtained in alluvial deposits on the Amur and Sungari rivers. In the south of the northern province of Heilungkiang large quantities of soda are obtained and exported in cakes to southern Manchuria and other northern parts of China, where it is extensively used in dyeing establishments and in connection with silk reeling. Yentai, Fuchow, Pensih, and Fushun are the four coal regions of southern Manchuria, the Fushun deposits being the richest. The clays include brick clay, cement clay, fusible clay for cloth rolling, pure white porcelain clay, and fire clay. Granite is quarried for local use, and jadeite is exported. The value of the annual export of timber from southeastern Manchuria is between \$2,500,000 and \$3,500,000. In accordance with the agreement of May 16, 1908, the Chinese and Japanese governments have organized the Yalu Timber Company, with a capital of about \$1,500,000, in which the two governments hold equal shares; it commenced operations at Antung on Sept. 25, 1908. After the lapse of one year private merchants will be requested to undertake the business. The wheat crop of Manchuria in 1907 was estimated at 8,000,000 bushels, and in 1908 at 20,000,000. Southern Manchuria is the great granary for North China, while northern Manchuria is as yet mostly forest and steppe. But Chinese colonization is transforming the country. Large flour mills have been erected by the Russians at Harbin and other places in northern Manchuria. A small flour mill was established in 1908 by the Manchurian Milling Company, a Japanese concern, which intends to establish a chain of mills along the South Manchurian railway. Southern Manchuria also produces large crops of millet and beans. About \$1,500,000 to \$2,500,000 worth of beans and bean cake is exported annually, the former to China, the latter to Japan. The annual production of wild silk (tussah) is valued at between \$2,000,000 and \$3,000,000. It is exported in the form of cocoons, waste, thread, and cloth. In 1907 the weight of cocoons shipped from Antung was over 10,667,000 pounds, about one-ninth to Japan and the bulk to China.

COMMERCE AND COMMUNICATIONS. In the course of 1907 progress was made in the settlement of commercial affairs. Antung was opened in March, 1907, with Tatungkow as a subsidiary port. In July, 1907, an office of the Chinese Maritime Customs was opened at Dairen (Dalny), and the advantage which, as a free port, Dairen had possessed over Newchwang, was thus ended. The railway rates from Dairen and Newchwang to Kwanchengtse were equalized, thus removing another advantage which the former had possessed over the latter. The opening of Harbin early in 1907 has put an end to untaxed competition by way of Vladivostok and the Russian frontier. For the imports and exports of Newchwang, Antung, and Dairen in 1907, see under CHINA, *Commerce*.

Northern Manchuria—the Russian sphere of influence—is crossed by the eastern section of the Trans-Siberian railway, 960 miles; and by the Central Manchurian railway, from Harbin to Changchun, with a branch line of 70 miles from the latter place to Kirin. Southern Man-

churia—the Japanese sphere of influence—is crossed by the South Manchurian railway, a continuation of the Central Manchurian from Changchun to Port Arthur and Dairen; and in the west by the Chinese line from Shanhaikwan to Newchwang and Sinmintun. The South Manchurian railway has a total length of 634.6 miles, consisting of a trunk line from Kwanchengtse (Changchun) to Dairen, 437 miles; a branch line from Dairen to Port Arthur, 38.9 miles; a branch line from Yingkow to Tashih-kiao, 13.4 miles; a branch line from Suchiatan to Fushun, 34.6 miles; and a light railway from Antung to Mukden, 108.7 miles. The whole length from Dairen to Kwanchengtse has now been standardized. The South Manchurian Railway Company, organized and controlled by the Japanese government, operates the railways and adjacent mines. During the year ended March 31, 1908, its total receipts were \$6,246,472, and its total expenditure, including interest on bonds, etc., \$5,242,212. The coal mines yielded a net income of \$275,396; the harbor \$6146. The dividend paid was 6 per cent. In August, 1908, the company inaugurated a direct steamship service between Dairen and Shanghai. The American and Manchurian Line maintains a monthly service from New York to Dairen. For History see CHINA; RUSSIA; JAPAN.

MANGANESE. Ores of manganese are mined in the United States in order to meet the demand for this material in the brick, paint, and chemical industries, and to a less extent in steel making, where, though large quantities are used, it is considered preferable to employ the foreign high-grade manganese ores, which were imported in 1908 to the extent of 178,203 long tons, valued at \$1,350,223, as compared with 209,021 tons valued at \$1,793,143 in 1907, and 221,260 tons, valued at \$1,696,043, in 1906. These ores came mostly from British India, Brazil, Cuba, and the East Indies. In the form of spiegeleisen and ferromanganese, manganese enters into steel making in a number of ways, and especially for making the manganese steel used for railway rails and armor, for burglar-proof safes and vaults for car wheels, and other purposes where extraordinary strength and resistance are required. The addition of manganese to steel gives greater hardness, ductility, and strength.

The following table from the U. S. Geological Survey reports shows the quantity, the value, and the average price per ton of the manganese ore produced in the different States in 1906 and 1907:

State	1906		1907	
	Quantity long tons	Value	Quantity long tons	Value
Arkansas	62	\$290	.....	.....
California	1	20	100	\$600
Georgia .....	.....	.....	800	4,800
South Carolina .....	.....	.....	.....	.....
Tennessee	30	300	100	1,500
Utah	800	10,000	.....	.....
Virginia	6,028	77,522	4,604	56,469
Total	6,921	88,132	5,604	63,369

MANITOBA. A province of Canada. (For area, see below, *History*.) Population in 1901, 255,211; in 1906, 808,863. Winnipeg, the capital, had 42,340 inhabitants in 1901, and 90,153 in 1906. For details respecting population, education, production, commerce, etc., see CANADA. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada and acting through a responsible ministry, and a unicameral legislative assembly of 40 members, elected for four years. The present Lieutenant-Governor is Sir Daniel Hunter McMillan, appointed for a second term on May 11, 1906. The present Premier is Romond P. Roblin.

HISTORY. The most important events in the political history of the province in 1908 were connected with Dominion legislation, especially with respect to an elections act which contained a provision revising the voters' lists in Manitoba previous to each Federal election. (See CANADA.) The Conservative government of Manitoba, of which Hon. R. P. Roblin is Premier, strongly opposed this measure because it was designed to take away Manitoba's control of the voters' list revision, substituting Federal for provincial revising officials. Other Dominion measures affecting the province were those extending the Manitoba boundaries, and the grain inspection and Manitoba grain acts. (See CANADA.) As a result of the first act, the area added is 178,479 square miles, making, with the previous area of 73,732 square miles, a total area of 252,211 square miles. The province is in area now practically equal to Alberta, Ontario, and Saskatchewan. There was some dissatisfaction reported because certain portions of the farming population could not secure telephone connection on as favorable terms from the government as under the former system. The ownership of interior grain elevators was strongly agitated. The report of the royal commission on Manitoba University recommended that its financial arrangements and control be placed entirely under the provincial government.

MANNING, WILLIAM T. An American Protestant Episcopal clergyman. He was born at Northampton, England, in 1866, came to America at the age of 10, and graduated in 1891 at the University of the South. He was ordained the same year and became rector of Trinity Church, Redlands, Cal. In 1893-96 he was professor of dogmatic theology at the University of the South. After serving as rector of parishes at Lansdowne, Pa., and Nashville, Tenn., he became vicar of St. Agnes' Chapel, Trinity Parish, New York City, in 1903. He became assistant rector in 1904; and during the same year declined the bishoprics of Kentucky and Harrisburg, Pa. On May 4, 1908, he was chosen to succeed Dr. Morgan Dix (q. v.) as rector of Trinity.

MANUEL II. King of Portugal, younger son of King Carlos I, succeeded to the throne upon the assassination of his father and the Crown Prince, Luiz Philippe, on Feb. 1, 1908. He was born on Nov. 15, 1889, and took the title of the Duke of Beja. He was trained as a sailor, serving as a midshipman on the man-of-war *Africa*. He got his primary education from his mother, who continued to exercise the greatest influence over him throughout his youth. He was said to have little liking for literature or

the arts, though he speaks English, French, and Spanish fluently. See CARLOS I.; PORTUGAL.

MARCHESI, SALVATORE, Cavaliere de Castrone, Marchese della Rajata. An Italian baritone singer and teacher of singing, died on Feb. 20, 1908. He was born at Palermo, on Jan. 15, 1822, and studied singing under Raimondi and Lamperti. In 1838-40 he held a commission in the Neapolitan Guard. In 1848, being exiled from Italy as a revolutionist, he went to London and studied under Garcia. He married Mathilde Graumann, a concert singer, in 1852. After appearing together in grand opera they began teaching singing at the Vienna Conservatory. They went to Cologne in 1865, and settled in Paris in 1881. Although somewhat overshadowed by the reputation of his talented wife, Signor Marchesi was an excellent singer and a most successful teacher. He also translated several grand-opera librettos into Italian, notably those of Wagner's *Lohengrin* and *Tannhäuser*.

MARINE BIOLOGICAL LABORATORIES AND STATIONS. See BIOLOGICAL STATIONS.

MARRIAGE. See DIVORCE.

MARS. See ASTRONOMY.

MARSHALL ISLANDS. A group of islands in the Eastern Pacific, east of the Caroline Islands, a German possession. Area, 156 square miles; population, 15,000. In 1907 there were 103 whites (76 Germans). Cocoa-palm plantations cover about 5,000 acres. Phosphates have been discovered on the island of Nauen. Their depth has not yet been ascertained. A company has been formed to work them, and the output for 1908 was estimated at 75,000 tons. The imports in 1906 amounted to 1,096,000 marks (347,000 from Germany), and the exports, mainly copra to 571,000 marks (294,000 to Germany). The islands are administered by a Commissioner residing on the island of Jaluit, and are administratively attached to German New Guinea (q. v.).

MARTINIQUE. An island of the Lesser Antilles, a French colony. Area, 381 square miles; population (1901), 207,011, reduced to 182,024 as a result of the eruption of Mount Pelée on May 8 and Aug. 30, 1902. In 1906 there were 546 East Indian coolies. Fort-de-France, the chief commercial town, had 27,069 inhabitants in 1901. The site of St. Pierre (destroyed May, 1902) is now covered with tropical vegetation. But the city is slowly rising from its ruins; there are now a hotel, several warehouses, and between 500 and 800 people. The first visit of a merchant steamer in nearly six years took place on Feb. 21, 1908. The chief products are sugar, rum, cacao, coffee, and tobacco, besides tropical food crops. In 1906 there were grown 370 pounds of cotton. The imports and exports in 1907 amounted to 15,940,039 and 18,997,221 francs respectively, the trade with France being represented by 8,667,000 francs of imports and 17,254,000 francs of exports. There are 140 miles of railway. The colony is administered by a Governor and an elective General Council. It is represented in the French Parliament by a senator and two deputies. The local budget for 1907 balanced at 4,750,000 francs. The debt in 1907 stood at 4,470,000 francs. The military force in 1907 consisted of 781 Europeans. The expenditure of France for 1908 was fixed at 1,870,197 francs.

MARTY, GEORGES. A French composer and conductor, died on Oct. 11, 1908. He was born in Paris, in 1860, studied at the Conservatory, and won the *Prix de Rome* in 1892. In 1890 he became chorus-master at the Théâtre Lyrique. He was appointed to the same post at the Paris Opéra in 1893. In 1900 he became *chef d'orchestre* at the Opéra Comique. His works include a music-drama, *Le Duc de Ferrare* (1900), a musical pantomime, an overture, several suites, and other vocal and instrumental pieces.

MARYLAND. One of the Middle Atlantic Division of the United States. Its area is 13,327 square miles, of which 3,386 square miles are water. The population in 1908, according to a Federal estimate, was 1,304,566. The largest city is Baltimore, with an estimated population in 1905 of 546,000.

MINERAL PRODUCTION. Coal and pig iron are the leading mineral products of the State, and in the output of these minerals important gains have been made in recent years. The production in 1907 was 5,532,628 short tons, with a spot value of \$6,623,697. In spite of the business depression which began in October, 1907, and which seriously affected the coal-mining industry during the last three months of the year, the production exceeded that of any previous year in the history of the State. Compared with the production of 1906 there was an increase of 197,175 tons, while the value increased \$148,904. The production has grown in the last ten years from 4,024,688 tons mined in 1900. The average number of men employed in the coal mines of the State in 1907 was 5,880, as compared with 6,488 in 1906, and 5,948 in 1905. The large production of pig iron is not based on local ores, but on ores from Cuba and Spain. The industry has grown from an output in 1905 of 332,096 long tons to 386,709 in 1906 and 411,833 in 1907. Clay products were produced in the State in 1907 to the value of \$1,886,362, as compared with a value of \$2,136,539 for the same products in 1906. The production of lime in 1907 was 103,423 short tons, valued at \$324,316, as against 127,863 tons valued at \$1,350,460 in 1906. The State produces a considerable amount of mineral water. In 1907 the production was 1,023,562 gallons, valued at \$110,039. There was produced in the State for 1907 slate to the value of \$118,060, as against a value for the same product in 1906 of \$130,969. The value of the stone products of the State in 1907 was \$1,439,355, of which granite amounted to \$1,183,753. There were also found small quantities of cement, flint, glass-sand, iron ores, metallic paint, sand-lime brick, talc, and soapstone. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$19,356,250, as compared with a value in 1906 of \$22,939,894.

The production of coal in Maryland in 1908 was 15 to 20 per cent. less than in 1907. As all of the product of the State is high-grade semi-bituminous coal used by the railroads, practically all of the decrease was due to the panic and to the depressed conditions that followed. The demand for coal at the close of the year showed little or no improvement over that of the earlier months.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the figures of the

United States Department of Agriculture were as follows: Corn, 24,705,000 bushels, valued at \$15,317,090 from 675,000 acres; winter wheat, 12,546,000 bushels valued at \$2,295,000 from 765,000 acres; oats, 765,000 bushels, valued at \$405,000 from 30,000 acres; barley, 30,000 bushels, valued at \$20,000 from 1,000 acres; rye, 285,000 bushels, valued at \$219,000 from 19,000 acres; buckwheat, 166,000 bushels, valued at \$126,000 from 9,000 acres; potatoes 2,464,000 bushels, valued at \$1,823,000 from 32,000 acres; hay, 480,000 tons, valued at \$5,760,000 from 300,000 acres; tobacco, 18,200,000 pounds, valued at \$1,365,000 from 26,000 acres. The production of corn increased from 22,196,000 bushels in 1907, while the production of potatoes was slightly less. Hay showed a considerable increase, the production in 1907 being 396,000 tons. The production of tobacco increased from 16,962,000 pounds in 1907. Market gardening and fruit and vegetable canning are extensive industries of the State. The numbers of farm animals have changed little since 1900, except for an increase in the number of sheep and a decrease in the number of swine. The estimated value of the wool clipped in 1908 was \$166,375.

MANUFACTURES. Moderate progress was made in manufacturing between the censuses of 1900 and 1905. The latter reported factories with \$201,877,966 capital, 94,174 wage-earners, and products valued at \$243,375,996, these items being, respectively, 35.3, .01, and 15.3 per cent. larger than in 1900. Of the wage-earners, 25,149 were women and 5,533 were children under 16. The values credited to leading industries and the per cent. of increase over 1900, in parentheses, were: Men's clothing, \$10,654,916 (13.4); canning and preserving, \$12,686,711 (9.3 per cent. decrease); iron and steel, \$12,230,409 (40); foundry and machine shop products, \$9,172,034 (8.6); flour and grist mill products, \$7,318,212 (1.1); tinsmithing, \$6,833,452 (14.8); fertilizers, \$6,631,763 (20.9); slaughtering and meat packing, \$6,332,914 (25.4), and shirts, \$5,998,249 (50.5). In 1905 Maryland ranked third in men's clothing and second in canning and preserving and in the manufacture of fertilizers. The clothing industry is carried on entirely in Baltimore. In the canning industry tomatoes, corn, peas, and beans are the principal vegetables used, and peaches, pears, and strawberries the principal fruits. Of the value of products, \$151,546,580 was credited to Baltimore.

EDUCATION. A law passed in 1904 provided that no white teacher having an average of fifteen or more pupils should receive less than \$300 a year. The Legislature extended this and provided that no teacher holding a first-class certificate who had taught three years should receive less than \$350 a year; five years, \$400, and eight years, \$450. The State school tax is 16 mills per capita and from the proceeds \$150,000 is deducted for free text books. The State makes a special appropriation for manual training departments of high schools (21), \$1,500 each, and \$1,500 to each of the 11 colored industrial schools. The laws of 1908 appropriated \$1,000 each to the 41 high schools for the maintenance of a commercial department. In the school year ending July 31, 1908, there were 350,319 persons of school age (5 to 20 years) in the State. Of these 140,771 were in Baltimore. The total school enrollment was

236,656, of which 89,180 were in Baltimore. The average attendance was 139,474. The teachers numbered 5,357, of whom 4,477 were females. The length of the school year is 9.7 months, and the average yearly salary of teachers outside of Baltimore was \$334.93 as compared with \$752.84 in Baltimore. There were 528 colored schools open for an average of seven months, employing 780 teachers and having a total enrollment of 43,802, and an average attendance of 22,987. There were 41 graded high schools, carrying out the full State course of study and subject to State inspection. The total disbursements for public schools was \$3,664,692.69. Of this amount, \$2,087,746.82 was raised by local taxation. In addition to the generous aid given to public schools, the State makes appropriations to more than 40 private academies, schools, colleges, and universities.

FINANCE. The report of the Comptroller of the Treasury for the fiscal year ending Sept. 30, 1908, showed a balance in the treasury on Sept. 30, 1907 of \$1,364,881. The gross receipts during the fiscal year were \$4,513,255, and the total disbursements \$4,639,483, leaving a balance in the treasury Sept. 30, 1908, of \$1,238,052, against which were chargeable funds due amounting to \$908,131, leaving a balance applicable to ordinary expenses of \$330,520. The chief sources of revenue were from licenses, from taxes for general purposes, and for taxes on corporations, etc. The funded debt of the State on Sept. 30, 1908, amounted to \$6,078,926, which was an increase of \$100,000 over the debt in 1907.

CHARITIES AND CORRECTIONS. The chief charitable and correctional institutions of the State are a hospital for consumptives at Eudowood; the Maryland Hospital for Insane at Catonsville; Springfield State Hospital, Sykesville; Maryland Tuberculosis Sanitarium, Sabillasville, and Baltimore Orphan Asylum. Besides there are many private institutions which receive aid from the State.

POLITICS AND GOVERNMENT. William Pinkney Whyte, who had been appointed by the Governor United States Senator, and then elected by the legislature to fill the unexpired term of the late Senate Gorman, died on Mar. 17. John Walter Smith, who a short time before had been elected to succeed Senator Gorman for the term beginning Mar. 4, 1909, was elected also to fill the unexpired term of Senator Whyte. The most important work of the legislature of 1908 was the appropriation of \$5,000,000 for the improvement of the roads of the State. Several political laws relating to elections and corrupt practices were passed. A general local option bill was rejected. The measure, although it was strongly supported by the Anti-Saloon League, and other bodies, failed of passage, being killed in the General Assembly on Mar. 11, by a vote of 56 to 43. A bill was passed increasing the license fees in Baltimore. An enabling act for a constitutional amendment which, if ratified by the people at the November election of 1909, will disfranchise illiterate negroes in the State, was passed.

CONVENTIONS AND ELECTIONS. The Republican convention to select delegates to the National Convention met at Baltimore on April 30. Resolutions were adopted instructing the delegates chosen to vote for William H. Taft for President. The Democratic State Convention met at

Baltimore on June 3. An unsuccessful attempt was made to secure the passage of a resolution endorsing William J. Bryan for President. Such strong opposition developed that this was found to be impossible, and the delegates were instructed. The election of Nov. 3 resulted in the division of the electoral vote in the State. The highest Taft elector had a majority of 613 over the highest Bryan elector (Taft 116,523; Bryan 115,910). In spite of this, however, the Democrats elected six electors in the State and the Republicans two. There was a difference of 3,376 votes between the highest and the lowest Republican elector. The ballot used was simple in form, similar to that used in Massachusetts, but mistakes were made in marking it by several thousands who could not read the names of candidates.

OTHER EVENTS. On May 4, Mayor Mahool of Baltimore removed from office two commissioners for opening streets who were charged with demanding and receiving money for paving contracts. The amount alleged to have been paid was \$10,000. In a collision on June 5, between two electric cars near Annapolis, 8 persons were killed. In May the General Conference of the Methodist Episcopal Church (q. v.) met at Baltimore.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: Provision was made for incorporation under the general law "for any lawful measures"; measures were enacted prohibiting the practice of law or giving of legal advice without admission to the bar, and stringent laws were enacted against barratry, measures were enacted providing for retiring aged and indigent teachers of public schools upon a pension of \$200 a year, a measure was passed consenting to the acquisition by the United States of lands in the mountain regions of Maryland for the establishment of a national forest reserve, professional Christian Science healers were brought within the statutory regulations concerning practitioners of medicine, several measures relating to railroads were enacted as well as important acts relating to elections.

STATE OFFICERS: Governor, Austin L. Crothers; Secretary of State, N. Winslow Williams; Treasurer, Murray Vandiver; Comptroller, Joshua Herring; Adjutant-General, Henry W. Warfield; Attorney-General, Isaac L. Strauss; Superintendent of Education, M. Bates Stevens; Commissioners of Insurance, B. Frank Crouse; Commissioner of Public Lands, Thos. A. Smith—all Democrats.

JUDICIARY. Court of Appeals: Chief Judge, James McSherry; Associate Judges, N. Chas. Burke, A. Hunter Boyd, Henry Page I. Thomas Jones, John P. Briscoe, S. D. Schmucker, and James A. Pearce; Clerk, Caleb C. Magruder—all Democrats except Schmucker, Republican.

The State legislature of 1909 is composed of 17 Democrats, 9 Republicans, and 1 Independent Democrat in the Senate and 71 Democrats and 30 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under the section Congress.

MASCART, ELEUTHÈRE ELIE NICOLAS. A French physicist, died on Aug. 26th, 1908. He was born at Quarouble, near Valenciennes, on Feb. 20th, 1837, was educated at the École Normale Supérieure and became conservator of

the collections in that institution. In 1872 he succeeded Regnault at the Collège de France, and in 1878 he became director of the Central Bureau of Meteorology in Paris, which position he continued to hold until 1907. He greatly improved the equipment and organization of this bureau and instituted the regular publication of weather forecasts and weather charts. Mascart first interested himself in optics, and was one of the first to employ photography in spectrum analysis. In 1862 he devised a spectrograph of which he made successful use in photographing ultra-violet spectra, adding new lines of those already charted. He also did some very skilful work in the analysis of wave-lengths, and in the investigation of interference phenomena. In 1876 he published a work on static electricity, wherein he presented the potential theory developed from the work of Green and of Lord Kelvin, and in 1877 he contributed to the *Journal de Physique* a description of the elementary theory of magneto-electric, and electrodynamic machines, including the first correct statement of the law of efficiency of motors. In 1881-84 he worked out anew the unit of resistance. He was elected to the Academy of Sciences in 1884, in place of Samin, and in 1904 became its president. His publications include *Traité d'optique* (4 vols., 1890-93), and *Traité de magnétisme terrestre* (1900).

MASON, OTIS TUFTON. An American ethnologist, died on Nov. 5th, 1908. He was born in Eastport, Maine, on Apr. 10th, 1838, graduated at the Columbian University in 1861, and in 1861-84 had charge of the preparatory school of that institution. He became curator of ethnology in the National Museum in 1884, and since 1902 had been head curator of the department of anthropology. With D. M. Toner and Garrick Mallory he was responsible for the founding of the Anthropological Society of Washington; he was anthropological editor of the *American Naturalist* for a time. He was appointed a member of the National Board of Geographic Names in 1890. Professor Mason did no field work, but he rendered great service to science by his lucid and precise descriptions of the great collections in the Smithsonian Institution, and especially those relating to the American aborigines. He arranged and classified the hitherto unclassified anthropological collections in the Smithsonian, making of them the basis of the present great archaeological and anthropological exhibits. On the objects in these collections he wrote a great number of papers, published by the Institution, including such titles as "Cradles of the American Aborigines" (1887); "North American Bows, Arrows and Quivers" (1893); "Migration and Food Quest" (1894); "Aboriginal American Baskerty" (1884 and 1892), and several contributions to the *Hand-Book of American Indians* (1907).

MASON, WILLIAM. An American pianist, composer, and teacher of music, died on July 14th, 1908. He was born in Boston, on Jan. 24th, 1829. He studied music in his native city, and appeared in public, as a pianist, in 1846; and later, studied abroad, under Moscheles, Hauptmann, Richter, Liszt, and others. In 1853 he gave a series of successful concerts on the Continent, and returning to the United States soon afterwards, made several successful tours here. In 1855, with Theodore Thomas, he organized the Mason and Thomas chamber music recitals. He

now settled in New York City and devoted himself to teaching, at which he was uniformly successful. He composed several works, chiefly for the pianoforte, and wrote several very valuable text-books. These are: *A Method for the Pianoforte* (1867); *A System for Beginners* (1871); both of these in collaboration with E. S. Hoadley; *Touch and Technic* (1878); *Pianoforte Technics* (1880, with W. S. B. Matthews). His *Touch and Technic* is still one of the standard treatises on piano playing. In 1901 he published a volume of reminiscences, under the title, *Memories of a Musical Life*.

MASSACHUSETTS. One of the North Atlantic Division of the United States. Its total area is 8,266 square miles. The population, according to a Federal estimate made in 1908, was 3,122,680. The largest cities are Boston, which had a population in 1906 of 602,678; Worcester, 130,078; Fall River, 105,942; Lowell, 95,173, and Cambridge, 98,554.

MINERAL PRODUCTION. The most important single mineral product of the State is granite, in the production of which Massachusetts in 1906 supplanted Maine in first place. The output for 1907 was valued at \$2,328,777, as against a value for the same product in 1906 of \$3,327,416. The value of the marble produced in 1907 was \$212,438, as against a value for the product of 1906 of \$271,934. The stone products of the State included also trap rock, sandstone, and limestone. The total value of the stone products in 1907 was \$3,218,979, as against a total value in 1906 of \$4,333,616. Massachusetts ranks seventh among the States in the production of stone. The clay products of the State in 1907 were valued at \$2,128,820, as against a value for the same product in 1906 of \$2,172,733. The State is an extensive producer of lime. In 1907, 119,072 short tons, valued at \$596,778, were produced, as compared with 119,267 tons, valued at \$563,100, in 1906. The State is notable in the productions of mineral waters. In 1906, 4,661,115 gallons were produced, valued at \$208,579, as against 3,857,955 gallons, valued at \$210,152, in 1906. Among other mineral products of the State are copper, glass sand, pig iron, sand and gravel, alum and aluminum sulphate, asbestos, coke, fuller's earth, iron ores, litharge, pyrite, red lead, salt, talc and soapstone, Venetian red, and white lead. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production in the State in 1907 was \$6,584,181, as compared with a value in 1906 of \$16,770,561.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 36,000 bushels, valued at \$29,000, from 2,000 acres; potatoes, 3,040,000 bushels, valued at \$2,584,000, from 32,000 acres; hay, 702,000 tons, valued at \$11,934,000, from 585,000 acres; oats, 231,000 bushels, valued at \$43,000, from 7,000 acres; rye, 66,000 bushels, valued at \$63,000, from 4,000 acres; tobacco, 7,444,800 pounds, valued at \$1,153,944, from 4,512 acres. The production of hay showed a decrease in 1908 from the production of 1907, which was 760,000 tons. There was an increase in the acreage and production of tobacco, which, in 1907, was 7,167,500 pounds, from 4,700 acres. The numbers of farm animals on January 1, 1909, were as follows: Horses, 83,000; dairy cows, 194,000; other cattle, 90,000; sheep, 45,000; swine, 69,000. The

increase in the number of sheep over the figures of 1907 is about 33 per cent., and in the number of horses and dairy cows about 7 per cent. The number of meat cattle and swine has decreased in recent years. The wool clipped for 1908 was estimated at 203,000 pounds, valued at \$51,806.

MANUFACTURES. The statistics of manufactures for 1907 given below are taken from the *Annual Report* of the Bureau of Statistics of Labor. The whole number of establishments making returns in the year was 5,671, with a product valued at \$1,364,431,255. There has been a great increase in the value of manufactured products since the special Federal census of 1905. This census, which represented a total of 10,723 establishments, reported a value of products of \$1,124,092,051. The following comparison may be made between the figures of the state census in 1907 and the Federal census of 1905, showing the increase in production during that period. The amount of capital invested was given in 1905 as \$965,948,887. These figures cannot be exactly compared with the figures of the State Bureau for 1907 because in the Federal census the definition of capital invested differed from that adopted by the State Bureau, which limited capital invested to capital actually devoted to production. According to the Federal census of 1905 the value of stock and material used was \$626,410,431: in 1907, \$779,840,958; the wage-earners in 1905 numbered 488,395; in 1907, 539,982; the total amount paid in wages in 1905 was \$232,388,946: in 1907, \$278,191,113; the average yearly earnings for employees in 1905 was \$475.82: in 1907, \$155.18. The tendency toward concentration of manufacturing plants in cities and large towns, and the consequent massing of the population in industrial centres, have greatly increased in Massachusetts in recent years. In 1905, out of a total value of a product of \$1,124,092,051, \$940,804,063 was produced in cities having a population of 8,000 or over, and in 1907, out of a total value of \$1,364,431,255, the value produced in towns having a population of over 8,000, was \$1,151,259,235, or 84.38 per cent. In 1907 there were 61 places of 8,000 inhabitants and over, aggregating 78.27 per cent. of the estimated population. The cities producing the largest value of manufactured products were Boston, \$190,248,668; Lawrence, \$70,632,098; Lynn, \$68,904,543; Worcester, \$68,623,320; Fall River, \$67,671,481; and Lowell, \$62,262,594. The most valuable manufactured product was cotton goods, which was valued in 1907 at \$193,276,574, and if woollen and worsted goods be included, the product value of textiles was \$326,206,933. The manufacture of boots and shoes, although less capital is invested therein, is the principal industry of the State. In 1907 the value of the product was \$233,025,182 or more than one-sixth of the capital. Next in value are the food preparation industry, \$101,802,690; machines and machinery, \$79,342,230; and metals and metallic goods, \$73,124,952.

FISHERIES. Massachusetts ranks first among the States in the value of fisheries. Statistics for 1907, published in 1908, showed products amounted to 205,743,374 pounds, valued at \$5,525,230.91. The values of the principal catches in 1907 were: Haddock, \$1,167,226; cod, fresh, \$1,212,155, and salted, \$575,097; mackerel, fresh, \$293,354.51, and salted, \$472,058; pollock, \$244,782.89; hake, \$317,404; halibut, \$343,402. Swordfish, squeteague, cusk, and flounders also represented large values.

EDUCATION. A school census of the State was taken on Sept. 1st, 1907. This showed the total number of persons of school age between 5 and 15 years of age as 538,654. The enrollment in the public schools during the year was 524,319. The average daily attendance was 466,214. The number of teachers in the public schools was 13,497 women and 1,281 men. The average wage per month of male teachers was \$155.95 and of female teachers was \$59.58. There were in the State in 1907-08, 266 high schools, with 2,073 teachers and 51,527 pupils. The expenditure for high schools was \$2,862,617. The total expenditure for the support of public schools was \$14,697,774. Of this sum the teachers' wages amounted to \$10,683,342. There was expended for new school houses \$2,610,432. The amount of local funds whose income must be appropriated for public schools was \$1,288,517. There were in the State ten normal schools, 1,876 students, and 129 teachers.

The Board of Education in its report of 1907-08 strongly urges the enlargement of opportunities for industrial education in the public schools and asks for State encouragement to assist these schools to undertake this enlargement of their usefulness.

FINANCE. The report of the State Treasurer for the fiscal year ending Nov. 30th, 1908, shows a balance on Nov. 30th, 1907, of \$2,142,841.24. The receipts for current expenses for the fiscal year 1908 were \$18,931,960.85. Temporary loans were made to the amount of \$4,100,000, making the total receipts for the year \$23,031,960.85. The expenditures for the year were \$18,700,088.93, leaving a cash balance on hand Nov. 30th, 1908, of \$2,374,713.16. The chief sources of revenue were from the sale of bonds, from securities matured, from institutions, etc., and from interest on investments. The chief payments were for investment for sinking funds, for the abolition of grade crossings, for metropolitan water supply, for metropolitan parks, for metropolitan sewerage for prisons and hospitals, for State highways, for charities, and for educational purposes. The receipts for funds for special purposes Nov. 30th, 1908, amounted to \$14,716,912.62, of which the funds for institutions comprised \$6,733,400.25. The total receipts from all sources for the year were \$39,748,873 and the total expenditures were \$39,657,346, leaving cash on hand Nov. 30th, 1908, of \$5,757,446.

CHARITIES AND CORRECTIONS. Since 1904 the State has assumed full responsibility for the care and support of all insane persons, many of whom had previously been cared for by cities and towns. In October and December, 1907, the latest date for which statistics are available, the population of the institutions for the insane under the State Board was as follows: Worcester, 1,132; Taunton, 938; Northampton, 773; Danvers, 1,232; Westboro, 907; asylums for the insane at Worcester, 933; Medfield, 1,456; State Colony for Insane, 428; Massachusetts Hospital for Epileptics, 558 (only one-half of them insane); Massachusetts School for Feeble Minded, 1,157. The total number of inmates was 9,798; the total expenditures for these institutions during the year were \$2,101,474. The number of prisoners on Oct. 1st., 1907, in the State prison at Charlestown, was 799; at the Reformatory at Concord, 823; at the Reformatory prison for Women at Sherburn, 142; State farm at Bridgewater, 1,043; Prison Camp and Hospital at

Rutland, 70; and in jails and houses of correction, 2,779. The expenditures for the five State institutions during the year 1907 aggregated \$452,358. The total expenditures for county jails and houses of correction for the year amounted to \$617,970.

POLITICS AND GOVERNMENT. The attempted merger of the Boston & Maine Railroad, with the New York, New Haven & Hartford Railroad, begun in 1907, continued to be a subject of political agitation during 1908. A special commission on commerce and industry appointed in July, 1907, reported early in the year in favor of permitting this consolidation, and a bill introduced into the Legislature in opposition to this action was defeated. On May 22d a bill in equity was filed by the Federal government in Boston to restrain the New York, New Haven & Hartford from exercising any control over the Boston & Maine. On July 31st a demurrer to this action was filed by the New York, New Haven & Hartford Railroad Company in the United States Circuit Court. At the same time the company filed a complaint against the Interstate Commerce Commission protesting against its attempt to enforce the eight-hour law for employees on the railroad. The matter was pending in the courts at the close of 1908.

Radical changes in the liquor policy of the State were brought about on May 1st, as a result of elections previously held. Three of the largest manufacturing cities, after long periods of license, gave up the liquor traffic. Worcester, with a population of 130,000, became the largest municipality in the country, if not in the world, under a no license régime. Licenses of 128 places, including 17 hotels, became void. Lynn also abolished saloons for the first time in twelve years. The same action was taken in Haverhill. In all, six cities and 36 towns abolished license. On May 21st, the Supreme Judicial Court of the State sent an opinion to the House of Representatives that the tax on transfers of stocks was unconstitutional.

The Finance Commission, appointed in 1907 by Mayor Fitzgerald of Boston, to investigate conditions in that city, made several reports during the year. On Apr. 17th the Commission issued a report dealing largely with combinations. It was declared that three sorts of combinations had been discovered: those among boiler makers; those among contractors for fireproofing, and those among concerns engaged in the manufacture and supply of structural steel. These combinations, it is alleged, were brought about by common agreement in which one bidder would be named to do the work at a certain price, and a certain percentage of the accepted profit would be assigned to each of the bidders, and the bids, so graded that a concern designated would be sure to be successful, were then submitted as if in good faith. In several places, in place of bids made in collusion, payment was made by one company to the others for abstaining from competition. The most notorious offenses were those committed by the combinations in the structural steel trade. The Finance Committee reported that this combination included "substantially all the local concerns and many of the largest corporations in the United States engaged in manufacturing or furnishing structural steel for use in any part of New England." On Nov. 15th the Commission reported on the purchase of coal by the city, contracts for flagging, stone crusher con-

tracts, and the purchase of Fourth of July prizes, declaring that "a lamentable picture of dishonesty and greed was disclosed." The chief complaint in the report was against the absence of competitive bids for contracts covering purchases involving more than \$2,000, which are required by law. During 1907 the Commission found that but 52 per cent. of such bids were authorized. The Commission recommended more general observance of the statute; an amendment making \$1,000 the limit above which contracts must be advertised; more general solicitation of competitive bids in the cases under \$1,000; and an amendment providing a penalty for violation of the statute "sufficient to cause a strict observance of the law on the part of members of the city council." In 1907 the General Court passed a law providing for savings bank insurance. This measure authorized any savings bank, under specified conditions to accept, for accumulation in a fund separate from its ordinary savings department, deposits to be applied to insurance and annuities. Several banks in the State took advantage of this provision in 1908 with considerable degree of success. See **BANKS AND BANKING.**

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention was held in Boston on Apr. 10th. An attempt was made to have the delegates to the convention instructed to vote for William H. Taft. The result was a compromise endorsement, the platform holding that the convention recognized that the "majority of the delegates to the convention desired Taft's nomination," but that it was "uncertain whether a resolution of preference would be carried, and its presentation would certainly lead to a contest which would be injurious to the welfare of the party." The convention adopted resolutions endorsing Governor Curtis Guild, Jr., as a candidate for the Vice Presidential nomination, and advocating a "wise revision" of the tariff. Resolutions were adopted praising the administration of President Roosevelt. The Democratic State Convention met at Boston on May 7th. An attempt to pass resolutions instructing the delegates to vote for William J. Bryan resulted in such instructions being given only to the delegates at large. The proceedings were marked with great disorder. The platform contained planks declaring that corporations should be forbidden to issue watered stock; should forfeit charters for political contributions and should, if foreign, be subject to the jurisdiction of State courts; railroads should be restricted to fair profits on fair valuation, and restrained from discrimination by imprisonment of officials.

The Republican State Convention for the nomination of candidates for the State ticket was held in Boston, Oct. 3d. Eben S. Draper, Republican Lieutenant Governor of the State for three years, was nominated for Governor. The most notable event of the convention was the contest between Louis A. Frothingham, former Speaker of the House, John N. Cole, Speaker of the House, and Robert Luce, for the nomination for Lieutenant-Governor. The Lieutenant Governor, according to Massachusetts tradition, is the logical candidate for Governor. On the first ballot, Mr. Frothingham lacked only 16 of the 770 votes necessary for a choice. Speaker Cole had 443 and Mr. Luce 331. Both withdrew when the result was announced, and Mr. Frothingham was nominated by acclamation. In 1904 he had resigned

as Speaker of the House at the request of the party leaders to run against John F. Fitzgerald for Mayor of Boston. He was defeated and the action of the convention was considered to be a reward for this sacrifice. The Democratic State Convention, held on Oct. 2d, nominated John H. Vahey for Governor.

In the election of Nov. 3d, William H. Taft received a plurality in the State of about 110,000, exceeding Roosevelt's plurality of 1904. Eben S. Draper received a plurality of about 26,000 for Governor. The detailed vote for National and State tickets was as follows: Taft, 265,966; Bryan, 155,453; Chafin, 4,374; Debs, 10,779; Draper, 228,318; Vahey, 168,162. The vote in Boston was exceedingly close. The city was carried for William J. Bryan by a plurality of only 24, the vote being Bryan 41,207, and Taft 41,183. In 1904 Parker carried the city by 10,600 votes. Vahey carried Boston by about 12,000. Municipal elections were held in 21 cities on Dec. 8th, all but one electing mayors. Fall River voted no license for the first time in years, and Gloucester voted again for no license after a year under license. Worcester voted for another year of no license by a majority of only 176 votes. In most of the cities the mayors were re-elected.

OTHER EVENTS. On Apr. 12th fire destroyed nearly one-third of the city of Chelsea, causing a loss of nearly \$10,000,000. For labor troubles in the State in 1908, see **STRIKES**. The city of Haverhill adopted a plan of city government similar to that adopted in 1907 by the city of Des Moines, Iowa. (See **MUNICIPAL GOVERNMENT**.) On June 8th a fire on the harbor front of East Boston caused a loss of property valued at \$1,600,000.

A new tunnel extending from Haymarket Square, under Washington street, for a distance of about a mile to Pleasant street, Boston, was opened to traffic in the first part of December in Boston. The tunnel was constructed at a cost of about \$10,000,000 and has been leased to the Boston Elevated Railroad for 25 years.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: Measures providing for the purchase of forest land and for reforestation. Several important measures were enacted relating to labor arbitration. The doctrine of assumed risks and also that of fellow servants where the employer was a railway corporation was abolished. Instruction was provided in the public schools as to tuberculosis and its prevention, and the manufacture and sale of cocaine was prohibited. Political committees and other representatives are prohibited from soliciting from candidates for their nomination money or promises to pay money as a prerequisite to obtaining nomination papers. Several other measures relating to elections were passed. An act was passed authorizing proceedings by the Attorney General to restrain by injunction the carrying out of any agreement for the creation of a monopoly for the sale of articles in general use.

STATE OFFICERS. Governor, Eben S. Draper, Republican; Lieutenant Governor, Louis A. Frothingham; Secretary of State, William M. Olin; Treasurer, Arthur B. Chapin; Auditor, Henry E. Turner; Adjutant General, W. H. Brigham; Attorney General, Dana Malone; Secretary of the Board of Agriculture, J. Lewis Ellsworth; Commissioner of Insurance, Frank C. Hardison—all Republicans.

JUDICIARY. Supreme Judicial Court for the Commonwealth: Chief Justice, Marcus P. Knowlton; Justices, James M. Morton, Arthur P. Rugg, Henry Newton Sheldon, John W. Hammond, William C. Loring, and Henry K. Braley; Clerk of the Court, Walter F. Frederick—all Republicans.

The State Legislature of 1908, was composed of 34 Republicans and 6 Democrats in the Senate, 172 Republicans, 59 Democrats and 9 others in the House. The state representation in Congress will be found in the article UNITED STATES, under the section Congress.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. An institution for higher scientific training in Boston, founded in 1861, opened in 1865. The attendance in the autumn of 1908 was 1,462, which was an increase of 50 over the registration of the previous year. The graduate class in June, 1908, numbered 230, and of those who received degrees, 70 came to the institute from other colleges. During the year the heating and power plant was rebuilt and has now one of the best boiler plants in New England. In the engineering laboratory a new steam turbine has been installed for experimental purposes. During the summer of 1908 a building was constructed as a social hall for students, called the Technology Union. Meals are served at low rates to students and a large hall is provided for social purposes. Physical training has been made compulsory in the first year. The endowment of the institute is \$1,875,000 and its annual income in 1908 was \$494,630.98, of which fees received from students amounted to \$318,392. Since June, 1907, the presidency has been vacant, and Professor Arthur A. Noyes has performed the duties of acting President. Professor Richard A. McLaurin, Professor of Physics of Columbia University, was elected President in 1908, and will take office at the beginning of the school year 1909.

MATHEW, Sir JAMES CHARLES. A British jurist, died on Nov. 9th, 1908. He was born in Bordeaux on July 10th, 1830, and was admitted to the bar in 1854, where he rapidly established a high reputation for ability. Among the cases in which he appeared was the famous Tichborne case in 1873. He was appointed to the bench in 1881 and became a lord-justice of appeal in 1901. He served in 1892 as chairman of the Evicted Irish Tenants' Commission. He was a nephew of Theobald (Father) Mathew, the famous Irish apostle of temperance.

MAURITANIA. A French possession in the western Sahara, extending from Morocco in the north to the colony of Senegal in the south. The administration is in the hands of a Commissioner, who is under the Governor General of French West Africa (q. v.).

MAURITIUS. An island in the Indian Ocean, a British crown colony. Area, 705 square miles; population (1906), 375,400, mostly East Indian coolies. Port Louis, the capital, had 52,740 inhabitants in 1901. Almost the entire area is devoted to sugar cultivation. The output of sugar was 214,000 tons in 1906-7, 167,000 tons in 1907-8, and 200,000 tons in 1908-9. The export of raw sugar in 1907 was 195,746,056 kilos (1 kilo=2½ lbs.), of which India took 125,686,204 kilos; Great Britain, 27,953,851; Cape Colony, 25,351,190; Argentina, 4,460,185; Australia, 4,448,752; Natal, 2,737,537; Delagoa Bay, 2,612,824. The imports and exports of Mauritius

in 1907 amounted to Rs. 31,161,095, and Rs. 43,829,279, respectively (1 rupee=32.44 cents). The trade is chiefly with British India (Rs. 14,700,531, and Rs. 27,599,685 for imports and exports, respectively); Great Britain (Rs. 7,980,799 and Rs. 6,668,904); Cape Colony, France, and Madagascar. The export of raw sugar in 1907 was valued at Rs. 32,588,335, other exports being aloe fibre, molasses, cocoanut oil, rum, and vanilla. There are 132 miles of railway and 250 miles of telegraph line. The revenue in 1906-7 was Rs. 10,329,618; the expenditure, Rs. 10,174,508; and the public debt, £1,315,590. The British garrison in 1908-9 numbered 1,418. The Governor in 1908 was Sir Cavendish Boyle. Attached to Mauritius are the islands of Rodrigues, Oil Islands, and St. Brendon or Cargados Islands, with a total area of 130 square miles and a total population of 5,440 in 1906.

MAYOTTE AND DEPENDENCIES. See COMORO ISLANDS.

MEAT AND MEAT INSPECTION. During the fiscal year ending June 30th, 1908, the Federal meat inspection was extended so that practically five-ninths of the animals slaughtered for food in the United States were inspected. Inspections was conducted at 787 establishments in 211 cities and towns, as compared with 163 in 58 cities and towns during the year that ended June 30th, 1906, the last previous to the new law. The number of animals slaughtered under inspection increased from 42,901,284 in 1906, to 53,973,337, of which 35,113,077 were swine, 9,702,545 were sheep, 7,116,275 were cattle, 1,995,487 were calves, and 45,953 were goats. This was an increase of 6 per cent. over 1907. In the examinations 175,126 carcasses and 704,666 parts were condemned, 108,519 carcasses were passed for lard and tallow, and 53,689,692 carcasses were passed for food. The number of animals inspected before slaughter was 54,059,901, as compared with 50,999,034 in 1907. Tuberculosis was the cause of rejection of about three-fourths of the cattle carcasses and two-thirds of the hog carcasses that were condemned. The majority of the other condemned hogs were affected with hog cholera and swine plague. Nearly 1 per cent. of the adult cattle and over 2 per cent. of the hogs inspected were found affected with tuberculosis in some degree. The financial loss due to condemnations for tuberculosis in these Federal meat inspections during the fiscal year was computed by Dr. A. D. Melvin, chief of the Bureau of Animal Industry, as \$2,112,436. The inspection for trichina, which was inaugurated in 1892 to meet the requirements of Germany and other countries which forbade the importation of American pork unless it had been microscopically inspected, was discontinued in 1907, as experience had shown that under practical conditions a reliable inspection for trichina is not possible. Such inspection was not considered necessary for the protection of the American public as the only danger of contracting trichinosis comes from eating pork in a raw, uncured state, which is not the custom among the people of this country. There were condemned on reinspection 43,344,206 pounds of meat products, which had become sour, tainted, putrid, unclean or, in the case of fats, rancid, since inspection at slaughter. A total of nearly six billion pounds of meat food products were passed on by the government inspectors. An increase of 13.8 per cent. over the previous year

was reported in the meats and meat products certified for export.

The first step in the work is that of the inspection of the living animals in the stock yards or pens, before they enter the abattoirs. Animals that do not appear to be perfectly sound or healthy are marked by attaching to their ears numbered tags that bear the words "U. S. Suspect." Such animals are segregated and slaughtered separately under special inspection. All animals are inspected again as they are slaughtered, and if evidence of disease is found, the affected carcasses are marked with tags bearing the words "U. S. Retained," and then sent to a compartment called the retaining room. There a thorough examination is made and it is determined whether they shall be passed for food, rendered into lard or tallow, or condemned. Carcasses there passed as fit for food are removed and placed with other healthy ones, while those in which the suspicion of disease is confirmed are stamped "U. S. Inspected and Condemned," and destroyed for food purposes. Before entering the chilling room each side of beef passed is marked "U. S. Inspected and Passed," with purple indelible ink, in five or more places. To this is added the establishment number, which serves as a convenient means of reference and provides a sure method of identifying the meat, should any question arise concerning it. This mark is necessary under the law in order to procure the movement of meats between States.

The law in effect in 1908 applied to the inspection of all cattle, sheep, swine, and goats, their meats and meat food products slaughtered or prepared at any establishment doing an interstate or export business. The law does not, however, apply to animals slaughtered by farmers, retail butchers and retail dealers. The inspection dealt with the sanitary conditions of preparation, honesty of labeling, and with the various processes of preparing, curing, canning, etc., as well as with the health of the animals slaughtered. This resulted in greatly improved sanitary conditions and methods at the slaughter house and packing plants. The use of preservatives was not permitted except in strict accordance with the law.

The employees of the Bureau of Animal Industry engaged in the inspection work numbered 2,203, of whom 616 are veterinary graduates. These positions were filled through Civil Service examinations, which assured the employment of capable and expert men. The permanent annual appropriation of \$3,000,000 was found sufficient.

The accompanying table shows the effect that the agitation of 1906 had upon the export trade of the United States, and the extent to which it has recovered. The prejudice was directed against the canned goods and not against fresh beef, as there was an increase in the export of the latter, while the trade in the former dropped enormously. The figures given for 1908 show that this trade was gradually being regained. The decrease in the exports of fresh beef during 1908 was considered as due to the increased home demand as well as to the enormous development of the South American beef trade with Great Britain. In 1907 the imports of fresh beef into the United Kingdom were valued at £10,397,102, to which the United States contributed £5,170,593, and Argentina, £4,308,273. In 1908 British fresh beef imports were valued at £10,308,380, Argentina contributing £6,102,926, and the United States, £3,268,584.

EXPORTS OF PRINCIPAL MEAT PRODUCTS DURING THE PAST FOUR YEARS.

	Twelve months ending June 30.			
	1905	1906	1907	1908
	lbs.	lbs.	lbs.	lbs.
Beef, canned	66,688,568	64,523,359	15,809,826	23,376,447
Beef, fresh	236,486,568	268,064,227	281,661,502	201,154,105
Beef, salt, etc.,	56,071,281	81,287,581	63,698,568	47,896,087
Bacon	262,246,635	361,210,563	250,418,699	241,189,929
Hams	203,458,724	194,267,949	209,481,496	221,769,634
Pork, canned	10,254,239	12,699,800	2,710,369	4,957,022
Pork, fresh	14,946,284	13,444,438	11,467,778	16,374,468
Pork, salt, etc.,	118,887,189	141,820,720	166,427,409	149,505,937
Lard	610,238,800	741,516,886	627,559,660	603,413,770
Total value of all meat products exported.....	\$165,109,932	\$202,236,842	\$195,759,282	\$187,847,507

MEDICAL PROGRESS IN 1908. The science of preventive medicine attracted a large share of the attention of all civilized countries and substantial advances were made in protecting communities from the various communicable disease. (See **HYGIENE; PLAGUE; RABIES; TYPHOID FEVER; WINTER CHOLERA.**) Diseases prevalent in hot countries became of more and more vital concern to the great powers interested in colonial expansion and research was stimulated in this direction. (See **INSECTS AND THE PROPAGATION OF DISEASE; MALARIA; SLEEPING SICKNESS; TROPICAL MEDICINE.**) The problems of immunity, and the little known properties of the blood were the occasion of a large amount of speculation and laboratory investigation. (See **ANTITOXIN; BLOOD; SERUM THERAPY.**) Popular interest was thoroughly aroused to an extent hitherto unknown in the possible control and eventual extermination of those twin scourges of the human family, consumption and cancer, and the prospects for success were never better. (See **CANCER; TUBERCULOSIS.**) A number of new drugs was brought to the attention of the medical profession, some of them were found to be substantial helps in therapeutics. (See **BROMURAL; FLUORESCIN; LECIBRIN.**) The various forms of radiant energy continued to be used and new applications for them were discovered. See **PHOTOTHERAPY.**) There was an increasing tendency toward the restriction of the use of alcohol in most civilized countries; China was trying to overcome the national drug addiction; and laws were enacted in many of the United States against the illegitimate use of cocaine. (See **ALCOHOL; COCAINE HABIT; OPIUM HABIT.**) Other medical items or statistics will be found under their proper heads.

MENOCAL, ANICETO GARCIA. An American civil engineer, died on July 20th, 1908. He was born at Havana, Cuba, on Sept. 1st, 1839, and came to the United States when eighteen years old. In 1862 he graduated at the Rensselaer Polytechnic Institute at Troy, N. Y., after which he returned to Cuba and became assistant chief engineer of the Havana Waterworks. Upon returning to the United States he was, in 1870, made an engineer in the Department of Public Works of New York City, and two years later was appointed civil engineer in the United States Navy Department. While in the government employ he served as chief engineer on the surveys for determining the practicability of a ship canal

at Panama and Nicaragua, was chief engineer of the Maritime Canal Company of Nicaragua, and later prepared plans and cost estimates for a ship canal through Nicaragua. In 1879 he was appointed delegate to the Canal Congress, held in Paris. Here his services won for him the regard of President Grévy, who made him Chevalier of the Legion of Honor. In 1900 he was sent to the Philippines as a member of the board appointed to draw up plans for naval stations. He was one of the commission to choose a site and prepare plans for a coaling station on the coast of Liberia, and also made the plans for a drainage system for the northern part of Cuba.

MERCURY. The following table from *Mineral Resources, 1907*, of the U. S. Geological Survey, shows the production, in flasks of 75 pounds each, and the values for the United States in the year 1906 and 1907:

Production of quicksilver in the United States in 1906 and 1907, in flasks of 75 pounds.

State	1906		1907.	
	Quantity	Value	Quantity	Value
California	20,310	\$730,808	17,431	\$662,544
Oregon ..	3	109	.....	.....
Texas	4,761	178,829	3,686	158,387
Utah	1,164	48,888	450	18,000
Total ..	26,238	\$958,634	21,567	\$828,031

In 1908 the American production was practically the same as in 1907, and the average monthly price per flask at San Francisco ranged from \$42.25 in September to \$45.12 in December, the average for the year being \$44.17, as compared with \$39.60 in 1907. The greater part of the quicksilver produced in the United States is for local consumption, there being but small shipments to Mexico and practically none to the Orient, where it must come into competition with the Spanish product. The most of the domestic production is now used for the manufacture of vermilion and for mirrors and scientific instruments, a small part being employed for amalgamating gold and silver ores. The world's production and value of quicksilver from 1903 to 1906, the last year for which figures were avail-

able in 1908, is given in the following table, published by the U. S. Geological Survey:

Country	1905		1906	
	Quantity	Value	Quantity	Value
United States ..	1,036	\$1,103,120	892	\$ 958,634
Austria	570	603,060	577	596,739
Italy	369	390,402	418	432,300
Russia	318	336,444	210	217,184
Spain	853	902,474	1,300	1,344,473
Total	3,146*	\$3,335,500	3,397*	\$3,549,330

* Mexico reported 190 tons in 1904 and 1905, and 200 tons in 1906.

MERRIAM, GREENLIEF A. An American naval officer, died at the Portsmouth Navy Yard Sept. 2d, 1908. He was born in Baltimore in 1850, and graduated from the United States Naval Academy in 1870. He was commissioned ensign in 1871, lieutenant in 1881, lieutenant commander in 1899, commander in 1901, and captain in 1906. At the time of his death he was in command of the navy yard at Portsmouth. He commanded the *Dixie* during the Spanish-American war, and the *Missouri* as far as San Francisco in the battleship cruise around the world in 1907-1908.

MERRILL, GEORGE EDMANDS. An American Baptist clergyman, president of Colgate University, died on June 11th, 1908. He was born at Charlestown, Mass., on December 19, 1846, graduated at Harvard in 1869, and at Newton Theological Institute in 1872. After receiving his degrees, he became pastor at Springfield, Mass., where he remained five years. From 1877 to 1885 he was pastor at Salem, Mass., and from 1885 to 1887 at Colorado Springs, Col. In 1890 he assumed the pastorate of the Immanuel Church in Newton, Mass., which he relinquished in 1899 to become president of Colgate University. He wrote several religious works, among which are: *The Story of the Manuscripts* (1881); *Crusaders and Captives* (1890); *The Reasonable Christ* (1893); *The Parchments of the Faith* (1895); and *The Songs of Solomon in the American Commentary on the Old Testament* (1905). Mr. Merrill received the degree of D. D. from Colby University in 1895 and that of LL. D. from the University of Rochester in 1901.

MERRIMAN, JOHN XAVIER. A South African politician, Premier of Cape Colony. He was born at Street, Somersetshire, Eng., in 1841; and educated at the Rondebosch Diocesan College. In 1849 he went to South Africa. He was Commissioner of Crown Lands from 1873 to 1878 and from 1881 to 1884; a member of the ministry from 1875 to 1878 and in 1881; and Treasurer-General from 1890 to 1893 and in 1898. In February, 1908, he succeeded Dr. Jameson as Premier.

MESEROLE, JEREMIAH VANDERBILT. An American soldier and banker, died at Far Rockaway, N. Y., on Aug. 13th, 1908. He was born in New York on Oct. 23d, 1833, became a surveyor and for many years was active in his profession in Brooklyn, retiring in 1891 to accept the presidency of the Williamsburg Savings Bank, a position he retained until his death. In 1855 he became a sergeant in the Seventh Regi-

ment, and he went to Washington with that command in 1861. When the Forty-seventh Regiment was organized in 1862, he became its colonel, and he served in that capacity until 1868. During the Civil War the regiment was several times called to the front and for a time helped to garrison Baltimore. He was made brigadier general in command of the Eleventh Brigade in 1868, and resigned from the National Guard in 1876.

MESSINA EARTHQUAKE. See EARTHQUAKES.

METCHNIKOFF, ILYA. A Russian embryologist and cytologist, was awarded (with Paul Ehrlich) the Nobel prize for medicine, in December, 1908. He was born in the province of Kharkov, on May 15th, 1842, and was educated there and at Giessen and Munich. He had the chair of zoölogy at Odessa in 1870-82 when he resigned to devote himself to private research. This has included investigation of the intracellular digestion of invertebrates, on which he published a very valuable memoir in 1884; and in the same year he enunciated the theory that inflammation in the vertebrates is caused by the conflict between the white corpuscles of the blood and the disease germs in it. In 1892 he became *chef-de-service* in Pasteur's Institute in Paris, and he succeeded to the direction of the institute upon the death of Pasteur in 1895. Some of his writings have been translated under the following titles: *Immunity in Infective Disease* (1905); *Nature of Man: Studies in Optimistic Philosophy* (1905); and *Prolongation of Life: Optimistic Studies* (1908).

METEOROLOGY. Professor Willis L. Moore, chief of the United States Weather Bureau, in his annual report for 1906-07, published in 1908, gave an account of some of the work accomplished at the Mount Weather Meteorological Observatory in Virginia. At this experimental station the study of the phenomena of the upper air was carried on by means of meteorological instruments which were sent up in kites to altitudes on the average from half a mile to two miles, and on several occasions over four and a half miles. In this way information regarding the vertical gradients of temperature and the direction of air currents at these altitudes has been gained, which has been of the greatest service in the making of forecasts for the Middle Atlantic and New England States. Heretofore forecasts of weather have been entirely based on the horizontal gradients of pressure and temperature measured near the surface of the earth. It is evident that, when a comparatively deep stratum of abnormally warm or cold air persistently overlies a region, a moving cyclone or anti-cyclone must influence the weather near the earth in a manner quite different from that in which it would influence it if the temperature of the upper air were normal. It was expected that researches of this character would lead to a radical improvement in the methods of making forecasts. Other problems, such as the investigation of the relation between the temperature changes which occur at high altitudes and those which occur near the surface, and the determination of the altitudes at which both the diurnal and annual variations of temperature cease, were indicated as likely to engage the attention of the staff of the station in the near future.

EVAPORATION AND THE SALTON SEA. Salton Basin, in the extreme southeastern part of Cali-

fornia, is a depression below the level of the sea, its lowest point being nearly 300 feet below mean tide. Several years ago, while a canal was being made from the Colorado river toward the Salton Basin for irrigation purposes, the water got out of control during time of flood, and for over a year the entire river discharged into the basin instead of the Gulf of California. After strenuous efforts the river was diverted to its proper channel, but there was left a lake or sea about 80 feet deep with a surface area of nearly 450 square miles, which is now known as the Salton Sea. It is well known that the rate of evaporation in any place depends on the temperature of the air and water, the dryness of the air, and the velocity of the wind, and other local conditions, but the exact nature of the dependence is not known. The important part which evaporation, equally with precipitation, plays in the economy of plant life renders the determination of the laws of evaporation on a large scale a matter of prime importance, especially in a country like the United States which has such vast agricultural interests. In the existence of a great body of water like the Salton Sea, with practically no outflow and a precipitation which can be accurately determined, the officials of the Weather Bureau see a splendid opportunity of clearing up this vexed question. It is an opportunity which is not likely to occur again very soon, for the sea will doubtless become a thing of the past in ten or fifteen years, and even before that time the salinity of its water will have increased to such an extent that the evaporation will no longer be normal and representative. Preliminary observations have already been made at the reservoir in Reno, Nev., with a view of determining the best method of attacking the problem, the solution of which will probably take several years.

THE ISOTHERMAL LAYER OF THE ATMOSPHERE. Reference was made in the YEAR BOOK for 1907 to the discovery by M. Teisserenc de Bort of the curious inversion of temperature which occurs at a height of from six to eight miles above the surface of the earth. At this altitude the air, the temperature of which has been steadily decreasing with increasing altitude, begins to get slightly warmer, or, at all events, the decrease of temperature goes on at a much diminished rate so that the air above this point may be considered as practically of uniform temperature. This layer of air is known as the "isothermal layer." In temperate Europe and America, it appears to begin at a height of about 35,000 feet; in the Arctic regions there are indications that it sinks as low as 23,000 feet, while at the equator Mr. A. L. Rotch failed to find it up to 56,000 feet; in fact, the paradoxical fact was established that in summer it is colder 8 miles above the equator than it is in winter at the same height in north temperate regions. It seems probable that the layer exists at the equator but at a height exceeding 50,000 feet, and that from this height it descends toward the poles in both hemispheres. Various explanations have been given to account for the existence of the layer, the most satisfactory being that it is the result of radiation, mainly from the mass water vapor in the lower strata of the atmosphere. Among the publications of the year may be noted *Climate. Considered Especially in Relation to Man*, by Prof. R. de C. Ward of Harvard University.

METHODIST EPISCOPAL CHURCH. A religious denomination, which took its beginning

from the great movement under the leadership of John Wesley, which was carried on in the middle of the eighteenth century. In the United States the first conference of the church was held in 1773, and an organization was brought about in 1785. In 1908 the total membership of the church was 3,376,888, of whom 3,028,815 were full members and 348,073 were probationers. The gain in 1908 over 1907 was 69,613, and the gain over the figures of 1900 was 448,005. The denomination had in 1908, 29,765 churches, valued at \$167,126,733, and 13,228 parsonages. At the close of 1907 there were 19,353 ministers, of whom 13,684 were serving as pastors. The total membership of the Sunday schools was 3,429,915, of whom 3,068,248 were scholars and 361,667 were officers and teachers. The Episcopal college, which includes the bishops of the denomination, consists of 32 members, 25 general superintendents, and 7 missionary bishops. The foreign membership of the church, which includes the communicants and probationers of its mission field, in 1908 was 305,322, an increase over the figures for 1907 of 22,887. Missions are carried on in nearly all the countries and divisions of the world. The total contributions for all causes for the year 1908 was \$44,268,781, of which about \$13,000,000 was for churches and parsonages; \$13,539,774 for ministerial support; \$3,582,753 for educational purposes; and \$3,532,769 for official benevolences. The latter includes missions, church extension, Sunday School Union, Tract Society, Freedmen's Aid, and American Bible Society. Foreign missions are carried on under the auspices of the Board of Foreign Missions of the Methodist Episcopal Church, which was organized on Jan. 1st, 1907, as the successor to what was known from 1819 to 1906 as the Missionary Society of the Methodist Episcopal Church. Important work is carried on by the church among the colored people of the South. In 1908 there were 1,823 pastors, traveling preachers, and supplies carrying on this work. The home missions of the church are administered by the Board of Home Missions and Church Extension. This Board in 1908 gave aid to 401 churches by donations amounting to \$133,777. The educational work, which includes the colleges under the auspices of the church, are carried on by the Board of Education. Other important bodies are the Board of Sunday Schools, Freedmen's Aid Society, the Women's Foreign Missionary Society, and the Bureau of Immigration Work. The nature of the duties of these bodies is sufficiently indicated by the titles. Under the direction of the church are 26 theological institutions, with an endowment of \$6,368,448, and a total membership of 1,392; 54 colleges and universities, with an endowment of \$20,186,768, and a total membership of 37,011; 46 classical seminaries, with an endowment of \$1,046,842, and a total membership of 9,930; 8 institutions exclusively for women, with an endowment of \$808,135, and a membership of 1,373; 55 foreign missionary schools, with an endowment of \$496,795, and a membership of 10,094; 4 missionary institutes and Bible training schools, with an endowment of \$106,000, and a membership of 487. The publications of the church are carried on by the Methodist Book Concern and by the Western Book Concern in the West. Among the official periodicals are the *Methodist Review*, bi-monthly, *World Wide Missions*, monthly, and the *Christian Advocate*, weekly. Periodicals are also issued in German.

The church lost during the year by death two bishops, Edward Gayer Andrews, and Charles Henry Fowler. Another notable loss occurred through the death of David Decamp Thompson, editor of the *Northwestern Christian Advocate*.

The 30th General Conference of the church met at Baltimore on May 23d. This meeting convened on the centennial anniversary of the first session of the General Conference in the same city. The sessions of the conference lasted during the entire month of May, and were attended by 787 delegates from all parts of the world. An Episcopal address, which was a review of the progress made by the denomination during the four years preceding, and also include recommendations in regard to ecclesiastical discipline and general conduct, was delivered by Bishop Daniel A. Goodsell of Boston. Many important matters were transacted during the session of the conference. Among the subjects which came up for discussion were the questions of the time limit upon the pastorate and forbidden amusements for church members. Bishop Goodsell in his Episcopal address recommended eliminating from the Book of Discipline the list of specified amusements inserted in 1872. Among the most significant incidents of the conference was the sending of a deputation to the Methodist Protestant General Conference then in session at Pittsburg with an invitation to the Methodist Protestant Church to reunite with the mother church. Dr. Thomas H. Lewis, President of the General Conference of the Methodist Protestant Church, attended the conference and delivered an address of remarkable strength and eloquence, favoring the reunion of the two churches. The six months' probation which has hitherto been required previous to admittance into full membership in the church was abolished, and the title Presiding Elder was changed to District Superintendent. Perhaps the most important work of the conference was the election of 8 new bishops. These were: William F. Anderson, John H. Nuelsen, William A. Quayle, Charles W. Smith, Wilson S. Lewis, Edwin Hughes, Robert McIntyre and Frank W. Bristol. A resolution was adopted requesting the bishops to appoint a commission, consisting of nine laymen, to compile statistics and gather information regarding the support of ministers. This Commission is to report at the General Conference of 1912. A resolution was also adopted favoring the holding of an Ecumenical Conference of all Methodism in 1911 upon the American continent. This conference is to include all Methodist denominations.

METHODIST EPISCOPAL CHURCH, SOUTH. A religious denomination, which was organized in 1845 as an independent division of the Methodist Episcopal Church, the separation being due to differing opinions on the question of slavery. In 1908 the church had 1,713,576 members, 7,188 traveling preachers, and 4,703 local preachers. There were 1,127,359 scholars in the Sunday schools, with 113,654 teachers. There were, under the church auspices 3,663 Epworth Leagues, with a membership of 127,924. There were received for foreign missions during the year \$381,180, and for domestic missions, \$268,080. The church extension receipts were \$120,243. The church has 15,816 buildings, valued at \$35,981,199. There are under the auspices of the church one university, 21 colleges, and 197 secondary institutions. The value of grounds and buildings is \$10,940,052, and the

endowment of university and colleges, \$4,155,704. The church increased in membership in 1908 by 55,042 new members, and in the number of Sunday school scholars, 43,121. The increase in the number of Epworth Leagues is 89, and in membership 4,233. Traveling preachers increased by 150 and local preachers decreased by 97. The Episcopal Board of Bishops consists of ten members. The church maintains a publishing house at Nashville, Tennessee. The principal publications are the *Methodist Quarterly Review* and the *Christian Advocate*.

METHODIST PROTESTANT CHURCH.

A religious body established in 1828 by members of the Methodist Episcopal Church who withdrew from that body on account of the refusal of the General Conference in 1824 to admit laymen. The church took its present name in 1830. It numbered in 1908 185,826 communicants, 2,390 churches, and 1,362 ministers. In 1907 a council was held with representatives of the Congregational House and the United Brethren for the purpose of negotiating for a union between the three bodies and an act of union was adopted, but at the National Council of Congregational Churches, it was voted to defer action, and this movement seems to have failed. At the General Conference of the Methodist Episcopal Church held in Baltimore in May, 1908, an overture for union with the Methodist Protestant Church was adopted, and commissioners were authorized to visit the General Conference of the Methodist Protestant Church, then in session at Pittsburg, Pa. The overture was favorably received, and a commission was appointed to meet similar commissioners from other Methodisms and if possible, present a plan for union at the next General Conference of the respective churches. It is hoped that the union will embrace the Methodist Episcopal Church, the Methodist Episcopal Church South, and the Methodist Protestant Church.

METROLOGY. See PHYSICS.

METROPOLITAN LIFE TOWER. See TALL BUILDINGS.

METROPOLITAN MUSEUM OF ART.

An institution incorporated under the laws of the State of New York in 1870 for the purpose of establishing a museum and library of art, and to encourage the application of the arts to manufactures and practical life. The museum has its collections in the handsome building in Central Park, which is owned by the city and leased to a corporation. Additions were completed in 1908 and others are under construction. In 1908 the total attendance at the Museum was 817,000, which is almost 17,000 greater than the attendance of the previous year. There were added to the collections 5,686 objects of art. Among the notable acquisitions during the year were the Hoentschel collection of Eighteenth Century French woodwork and furniture, the gift of J. Pierpont Morgan; a collection of laces numbering 967 pieces from Mrs. Magdalena Nuttall; sixteen modern paintings from Mrs. M. T. Fiske-Collord; William Morris Hunt's painting, "The Girl at the Fountain," from Miss Jane Hunt; Kenyon Cox's portrait of the late Augustus St. Gaudens, from a circle of the sculptor's friends; and the Rodin Group in Marble called "La Main de Dieu," from E. D. Adams.

Archæological work was carried on in Egypt during the year, and the result of these explorations will be found in the article ARCHÆOLOGY.

In addition to these a number of valuable acquisitions were purchased from the Egyptian government. These included several Egyptian tombs. The plan of special exhibitions under the auspices of the museum, which was initiated in 1908, will be continued in 1909. The cost of the administration of the museum in 1908 was \$260,396, of which the city contributed \$160,000, and the balance represented membership dues, subscriptions from trustees and the money received from admission fees. The director is Sir Caspar Purdon Clarke, and the president of the Board of Trustees, J. Pierpont Morgan.

MEXICO. A republic of North America. Area, including the islands, 767,258 square miles; population (1900), 13,607,259. Foreigners numbered 57,588 (15,266 Americans and 16,278 Spaniards). According to race, 19 per cent. were white, 38 per cent. uncivilized Indians, and 43 per cent. mixed. Roman Catholics numbered 12,380,245; Protestants, 51,795. The population of the principal cities in 1900 was: Mexico, the capital, 344,721; Guadalajara, 101,208; Puebla, 93,152; Leon, 63,263; Monterey, 62,266; San Luis Potosi, 61,019; Mérida, 43,630; Guanajuato, 41,486; Pachuca, 37,486; Morelia, 37,278; Aguascalientes, 35,052; Oaxaca, 35,049; Zacatecas, 32,856; Queretaro, 33,152; Orizaba, 32,849; Durango, 31,092; Chihuahua, 30,405; Vera Cruz, 29,164; Toluca, 25,940; Celaya, 25,565; Saltillo, 23,996; Colima, 20,698; Jalapa, 20,388.

EDUCATION. In 1904 there were 9,194 elementary schools supported by the federal government, the state, and the municipalities, with 620,476 pupils (237,969 girls). Schools for secondary instruction, supported by the federal and state governments, numbered 36, with 4,642 pupils (1,063 girls). Federal and state professional schools, of which 20 were normal, numbered 65, with 9,018 students (3,790 women). Private, clerical, and association schools, nearly all primary, numbered 2,281, with 135,838 pupils (61,982 girls). In 1907 there were 398 federal schools in the federal district, and 170 in the territories, with a total of 62,686 pupils. The National College of Agriculture and Veterinary Surgery was opened in 1907 with 240 students.

MINERALS. The production of gold in 1906-7 amounted to 36,563,898 pesos (1 peso = 49.8 cents); of silver, 77,088,827 pesos. There are over 1,000 copper mines, the two principal copper mining camps being at Cananea (Sonora), and Boleo (Lower California). The copper production in 1907 was 61,127 metric tons, and the lead production, 72,000 tons. The production of these two metals declined during the year, while that of zinc and antimony increased. The known coal-bearing fields are in the states of Puebla, Oaxaca, and Coahuila. The principal coalfields now being exploited are in the neighborhood of Sabinas, in Coahuila, and are similar to those of Texas. The coal mined in this district is used in the smelters of Monterey, Saltillo, Torreón, etc., as well as by the railways. The petroleum-bearing lands extend from central Tamaulipas to the district of Valles in San Luis Potosi (where the Ebano oil deposits are being worked) and into Vera Cruz. Another field extends further to the south from Vera Cruz through Tabasco, Campeche, and Chiapas. In small quantities petroleum has also been found in the Federal District, Jalisco, and Oaxaca. The Ebano oil is used as fuel for locomotives. Messrs. Pearson and Sons, an English corporation, have ob-

tained concessions of 1,000,000 acres of oil-bearing lands and have erected a large refinery at Minatitlán. There are also large refineries, owned by Americans, at Tampico, Vera Cruz, etc. Asphalt is chiefly produced in the Tuxpam and Tampico districts, on the Gulf of Mexico. The Tampico product is chiefly the residue from the Ebano works, 40 miles to the west. The Minatitlán works also ship asphalt.

The principal iron deposits are in Colima, where there are, within a radius of 30 miles, deposits which show at least 60 per cent. of iron with a low percentage of phosphorus and are estimated to contain 60,000,000 tons of iron; in Michoacan, where the Progreso deposit measures over 28,000,000 tons of a superior grade of iron; in Guerrero, near the mouth of the Balsas River, from 220,000,000 to 260,000,000 tons of 63 per cent. iron; besides minor deposits of from 1,000,000 to 20,000,000 tons. The village of Cuyatlán, situated on the sea-coast some 20 miles southeast of Manzanillo, is the centre of the salt industry in the State of Colima. The annual output is about 110,000 tons. Concessions have been granted for working the guano deposits on the Arcas and Arenas islands, in the Gulf of Mexico.

AGRICULTURE. The principal agricultural products are wheat (about 10,000,000 bushels in 1907), maize (70,000,000 bushels in 1906), rice (62,000,000 bushels in 1906), sugar cane, henequen, cotton, coffee, cacao, and tobacco. The wine production for 1907 was 500,000 gallons. The production of sugar for 1907-8 was estimated at 115,000 tons. Morelos is the centre of the sugar industry, followed by Vera Cruz, Puebla, Michoacan, and Jalisco. The output of molasses in 1906-7 was over 68,000 tons. The area under cotton in 1907 was about 300,000 acres, and the production, about 85,000 bales of 500 pounds each—a large reduction from the previous year. The coffee production for 1907-8 was estimated at 92,000,000 pounds, against 33,000,000 in 1906-7. The Mexicans expect a great future for this industry; for 1908-9 the estimate is 81,000,000 pounds. Yucatan is the home of the henequen or sisal fibre, which is grown in no other section of the republic. It covers about 100,000 acres, and its export from the port of Progreso in 1907 amounted to 611,845 bales, weighing 100,773,004 kilos (1 kilo = 2.15 pounds), and valued at 24,874,317 pesos. Of the above total, the United States took 552,072 bales; Canada, 44,269; Cuba, 7,787; and Europe, 7,710. In 1908 the henequen planters suffered from the financial depression, and the National Bank advanced them loans to the amount of 2,000,000 pesos. Another measure in aid of the planters was the abolition of the export duty on henequen in April, 1908. Guayule rubber is an important article of export. It is said that the known supply will be exhausted within seven years, and government experts have announced the discovery of *palo amarillo*, or *palo colorado*, as a plant which is superior to guayule. The latter yields about 8 per cent. of rubber and no by-products, while the former is stated to yield 10 per cent. of rubber and 40 per cent. of varnish and soap material. A company has been formed at New York with a large capital to exploit the new discovery.

In 1908 a law was passed, subsidizing irrigation works and providing for the establishment of banks making loans at easy rates of interest to agriculturists and manufacturers. In pursu-

ance of this law, a bank was established, the "Caja de Prestamos para Obras de Irrigacion y Fomento de la Agricultura, S. A.," the capital to which was subscribed by the four leading banks of Mexico City. The new bank issued bonds to the value of \$20,000,000 gold, guaranteed as to principal and interest by the Mexican government.

CATTLE-RAISING. In 1902 there were in Mexico 5,142,457 cattle, 859,217 horses, 334,435 mules, 287,991 asses, 3,424,430 sheep, 4,206,011 goats, and 616,139 pigs. Within the last few years there has been a decided improvement in the care taken of animals and also in the imports of animals, many pure-bred cattle having been introduced from the United States. There are numerous and extensive haciendas admirably adapted and almost exclusively devoted to the rearing of cattle. Stockmen from the American west and middle west, where the larger ranches are being gradually cut up for agricultural purposes, are now turning their attention to the grazing lands of Mexico, which are estimated at about 120,000,000 acres. The exports of hides and skins increased from 18,866,371 pounds in 1903-4 to 23,811,435 pounds in 1905-6.

MANUFACTURES. Among the manufacturing industries the cotton industry is the most important. In 1905 there were 128 cotton factories (in 1906, 125), employing 30,162 persons, 678,058 spindles, and 22,021 looms, and consuming 68,850,195 pounds of cotton during the year. There has been no notable expansion of the industry since then; for 1907-8 the number of spindles was estimated at 730,000, and the consumption of cotton at 175,000 bales. At Monterey there is a steel plant turning out rails, structural steel, etc., with a capital of 10,000,000 pesos. In 1908 it received an order from the National Railways of Mexico for 20,000 tons of steel rails. Other iron works exist at Chihuahua, Durango, Pachuca, Aguascalientes, Mexico City, etc. The Mexican National Packing Company, the capitalization of which was increased in 1907 to \$15,000,000 pesos, has packing plants in Uruapan (Michoacan) and Mexico City, with a joint capacity of 1,100 beeves a day, and in 1908 it proposed to build packing plants at Vera Cruz and Monterey, the four to have a capacity of from 2,500 to 3,000 head a day. The capital is mainly British, although an American is at the head of the company. In 1907 there were 995 tobacco factories, which produced 325,259,735 packages of cigarettes, 134,055,669 cigars, 164,308 kilos of smoking tobacco, and 27,800 kilos of snuff. The Indians are experts in the manufacture of pottery by hand. Guernavaca, Guadalajara, Puebla, and Oaxaca are the principal centres of this industry, but it is met with in many of the smaller towns and villages throughout the country.

FOREIGN COMMERCE. The imports and exports of Mexico during the fiscal year 1907-8 amounted to 221,535,993 and 242,738,907 pesos, respectively, against 232,229,579 and 248,018,010 pesos, respectively, in 1906-7. The imports, by classes, in 1907-8 were as follows, in pesos: Animals and animal products, 17,263,792; vegetable products, 30,631,463; mineral substances, 69,517,707; textiles, 30,575,815; chemicals and drugs, 10,350,906; beverages and liquors, 7,163,930; paper, 6,146,866; machinery, 28,673,001; vehicles, 7,387,089; arms and explosives, 3,650,314; miscellaneous, 10,175,110. The mineral substances included iron and steel construction and industrial

materials, worth 23,409,923 pesos, and iron and steel manufactures, valued at 7,248,458. The textiles included cotton yarns and fabrics, valued at 17,628,193 pesos. The exports, by classes, in 1907-8, were as follows, in pesos: Minerals, 158,430,625 (including gold, 31,921,019; silver, 93,034,751; copper, 24,834,068; antimony, 1,691,187; lead, 5,344,562; besides marble, plumbago, zinc, etc.); vegetable substances, 70,185,983 (including uncleaned cotton, 10,592,486; guayule, 1,232,634; rubber, 8,891,681; chicle, 2,251,625; peas, 3,418,259; henequen, 27,019,340; ixtle, 2,900,728; leaf tobacco, 2,637,742; broom root, 2,347,699; vanilla, 1,911,061; woods, 2,189,718; besides dyewoods, sarsaparilla, beans, oil of aloes, etc.); animals and animal products, 9,659,789 (including undressed hides, 6,798,425); manufactures, 3,014,029, including sugar, flour, straw hats, manufactured tobacco, etc. The trade with the principal countries of origin and destination in 1907-8 was as follows, in pesos:

From and to	Imports	Exports
United States	117,235,185	170,125,337
Great Britain	32,870,327	26,256,848
Germany	28,397,662	22,359,372
France	19,986,727	12,393,816
Spain	7,609,925	2,331,048
Belgium.....	3,237,551	6,029,537

SHIPPING AND NAVIGATION. In 1907 the Mexican merchant marine (excluding vessels of less than 100 tons) consisted of 44 steamers, of 16,206 net tons, and 18 sailing vessels, of 4,021 net tons. In 1906-7 in the foreign trade there entered 1,697 vessels of 3,282,125 tons, and cleared 1,669 vessels of 3,257,932 tons.

INTERNAL COMMUNICATIONS. In 1907 the total length of railways was 14,172 miles, of which the federal government owned 11,418 miles. Included in the government railways is the Tehuantepec Railway, from Coatzacoalcos, on the Gulf of Mexico, to Salina Cruz, on the Pacific, 189 miles long. A regular steamship service between New York, and Honolulu via the Tehuantepec Railway is being operated by the American-Hawaiian Steamship Company. The first really transcontinental railway in Mexico was completed in 1908. It runs from Tampico, on the Gulf of Mexico, to Manzanillo, on the Pacific, 1,031 miles. It is intended to shorten the route to some 800 miles by building a cut-off between Guadalajara and Aguascalientes. Another important line completed in 1908 was the railway from San Jeronimo, on the Tehuantepec Railway, to Tapachula, in the State of Chiapas, on the Guatemalan frontier—an important link in the proposed Pan-American line.

In 1908 the Mexican Central Railway was merged with the National Railways of Mexico, the government obtaining a controlling interest in the former, as well as in the latter. Towards the end of 1908 the Mexican Central line from Guadalajara reached the Pacific port of Manzanillo, about 220 miles distant. The engineering difficulties were so great that the construction of this line had to be spread over many years. In 90 miles the line rises from sea-level to an altitude of nearly 5,000 feet, crossing many rivers and gorges in its course. An even greater project is being carried out by the Southern Pacific Railroad, of the Harriman system, which is building

a line to connect Guadalajara directly with the United States. The total distance from Nogales, Arizona, to Guadalajara is 1,114 miles. In the middle of 1908 Nogales was connected by rail with Guaymas, 260 miles distant, and work was progressing between Culiacan and the Fuerte River, while the route was graded for several miles north and south of the port of Mazatlan. Tequila was to be reached by Nov. 1st. The total cost of the line is estimated at \$25,000,000, the Mexican government granting a subsidy of 12,500 pesos for each kilometer completed. Exceptional difficulties have had to be overcome, and for a distance of some 20 miles the cost will be as high as \$100,000 per kilometer. The important points on this Mexican extension of the Southern Pacific will be as follows: Guaymas (30,000 population), the seaport of the State of Sonora, 260 miles from Nogales; Alamos (10,000 population), an important mining centre in Sonora, 173 miles from Guaymas; Culiacan (14,403 population), capital of Sinaloa state, 288 miles from Alamos; Mazatlan (16,000 population), an important seaport of Sinaloa, 155 miles from Culiacan; Santiago Ixcuintla (8,500 population), a town in the Territory of Tepic, 148 miles from Mazatlan; Tepic (15,488 population), capital of Tepic territory, 43 miles from Santiago Ixcuintla, and 169 miles from Guadalajara.

The length of government telegraph lines in 1908 was 38,527 miles, and of government cable lines, 481 miles. There are also about 3,000 miles of telegraph line belonging to the states and private companies.

The Mexican government is constructing a canal, 104 miles long, to connect the ports of Tampico and Tuxpam. The canal is to run within from two to five miles of the Gulf along its whole length, its main purpose being to facilitate coast traffic. It is to be completed by 1910.

BANKS. On Dec. 31st, 1907, there were 34 chartered banks, of which 29 were banks of issue. The largest of these is the National Bank of Mexico, with assets and liabilities on the above date of 302,317,856 pesos. The total capital of the banks was 171,600,000 pesos; reserves, 59,736,197; certificates in circulation, 91,475,982; loans, 145,692,875; total assets and liabilities, 760,748,651. During the recent monetary stringency the Mexican banks continued to meet their obligations in cash, but the rate of interest was advanced to 12 per cent., an increase of 2 1-2 per cent. from July, 1907. Concerning the new Agricultural and Irrigation Bank see above, *Agriculture*.

FINANCE AND MONEY. In 1906-7 the ordinary revenue amounted to 114,286,122 pesos, and the ordinary expenditure to 85,076,641 pesos. The budget for 1908-9 estimated the revenue at 103,380,000, and the expenditure at 103,203,000 pesos. The principal estimates of revenue were, in pesos: Customs, 49,595,000; direct taxes, 32,030,000; excise taxes, 6,250,000; mining taxes, 4,340,000; lottery, 4,130,000; posts and telegraphs, 6,325,000. The principal estimates of expenditure were, in pesos: Public debt, 26,201,870; justice, 15,837,500; public instruction, 6,902,500; communications, 8,648,300; war and marine, 20,466,700; posts and telegraphs, 7,910,370. The public debt stood on June 30th, 1907, at 444,530,710 pesos, consisting of a consolidated gold debt of 310,515,580 pesos, a consolidated sil-

ver debt of 133,291,000 pesos, and a floating debt of 724,130 pesos.

The monetary unit is the silver peso or dollar, the legal value of which has been fixed at 75 centigrams pure gold (=49.8 cents). The total coinage from May 1st, 1905, to June 30th, 1908, amounted to 59,782,590 pesos, consisting of 40,813,250 pesos gold (10-peso and 5-peso pieces), 18,100,272 pesos silver (pesos, and 50, 20, and 10-centavo pieces), 400,864 pesos nickel (5-centavo pieces), and 468,204 pesos copper (2 and 1-centavo pieces). The fractional silver and copper coins of the old issue retired from circulation from May 1st, 1905, to June 30th, 1908, amounted to 5,137,224 and 125,576 pesos, respectively. The bank-notes are rigidly secured by the charters under which the banks of issue operate.

ARMY AND NAVY. The army is recruited by voluntary enlistment, supplemented by a form of conscription which applies only to the poorest classes of the population. Universal compulsory military service was a part of the last reorganization scheme, but had to be abandoned on account of the extensive opposition it provoked. The army consists of 28 battalions of infantry; 14 regiments of cavalry; 2 regiments of field, 1 of horse, and 1 of mountain artillery; 1 battalion and 3 sections garrison artillery, and 1 machine gun company. The peace strength of the army is about 26,500, and the nominal war strength about 82,500, of all grades. The navy consisted in 1908 of one unprotected small cruiser, 1,220 tons, and 8 gunboats of 6,240 tons, with about 1,200 officers and men.

GOVERNMENT. The republic consists of 27 states, two territories, and a federal district. President Porfirio Diaz's seventh term commenced on Nov. 1st, 1904. The Vice-President is Ramon Corral. The cabinet at the end of 1908 was as follows: Interior, the Vice-President; Foreign Affairs, Ignacio Mariscal; Finance, José I. Limantour; Justice, J. Fernandez; Public Instruction, Justo Sierra; Fomento, Olegario Molina; Communications and Public Works, Leandro Fernandez; War and Marine, M. Gonzalez Cosio; Treasurer, J. Arrangoiz.

HISTORY. The year on the whole was one of prosperity and peace. In the summer, however, there was trouble with the Yaqui Indians and with small bands of Mexican insurgents. The Yaquis committed a number of raids toward the end of June, and on July 1st it was announced that 200 of them had been captured by the federal troops in the mountains of Sonora. On Dec. 29th the long war with the Yaquis was terminated by a treaty of peace agreed upon by the Governor of Sonora and three Indian chiefs and 166 of their followers. On June 25th insurgents raided Viesca in the province of Coahuila and looted the town. The government acted with promptness and a number of the rebels were captured. At about the same time rebels threatened the town of Torreon and were active in the vicinity of Ciudad Porfirio Diaz. On June 26th there was an engagement near Las Vacas in which several of the insurgents were killed. Federal troops were hurried to the disaffected regions. The government declared that agitators on the United States side of the frontier were causing the trouble, and the United States War Department ordered troops to the border to enforce neutrality. A fight was reported at the end of July a few miles across the Rio Grande from Comstock, Texas,

resulting in slight losses to both sides. On May 28th a treaty of amity and commerce was signed with Honduras. Ratifications of the arbitration treaty with the United States were exchanged June 27th. On June 19th a new banking law was enacted and in August a revision of the tariff was made. Congress met on September 17th, and in the President's address, approval was expressed of the attitude of the United States toward neutrality and of the Central American Court of Justice, and reference was made to the steps taken to broaden the system of education and to the establishment of a bacteriological institute and a board of forestry, harbor improvements, and irrigation. In March a serious earthquake, causing great loss of life and property, was reported in the eastern part of the state of Guerrero. During the summer the English press in the city of Mexico reported the prevalence of bitter anti-American sentiment throughout the country. Measures directed against foreign merchants and landowners were introduced into Congress. One probable cause was the belief that the United States government permitted the opponents of the Diaz régime to carry on their active agitation from American soil.

MICHIGAN. One of the North Central Division of the United States. Its total area is 57,980 square miles. The population, according to a federal estimate in 1908, was 2,639,050.

MINERAL PRODUCTION. The mineral resources of the State are remarkable for both extent and progress of development. Both the iron and the copper mines rank among the most productive of the country. Of the iron ore produced in the United States the mines of the Lake Superior region furnish about 70 per cent., while the copper mines of Michigan furnish about 14 per cent. of the copper produced. In 1907 the Michigan copper mines, unlike the copper mines in other sections of the country, were operated in most instances at full capacity, and had a successful year. The production of copper obtained for the calendar year 1907 was, according to statistics furnished by the Commissioner of Mineral Statistics, 220,217,892 pounds, as compared with 224,407,859 pounds for 1906, and 217,762,382 pounds for 1905. The amount of copper produced and dividends paid in 1907 was exceeded only since the mining of copper began in the State by 1906, and but for the financial stringency and business depression occurring during the later months of the year, it is probable that the year would have seen a larger production of copper than ever before recorded. Copper sold for much better than average prices and the mines which worked at full capacity sold their products without difficulty. The iron mines of the Lake Superior region are worked harder and more vigorously than are the mines of any other district in the world, and the results accomplished are not surpassed anywhere on the globe. The three years 1905, 1906, and 1907 formed a remarkable period in iron-mining in this region. The quantity of iron mined in the three years included in this period is as follows: 1905, 34,242,065 tons; 1906, 38,522,239 tons; 1907, 42,245,076 tons. The record year previous to 1905 was 1903, when the shipments amounted to 27,571,121 tons of ore. The production by ranges in 1907 was as follows, by tons; Menominee (partly in Wisconsin), 4,964,728; Marquette, 4,388,073; Gogebic (partly in Wisconsin), 3,637,907. During 1907 ore was forwarded to furnaces from 190 mines in the Lake Superior mining region, and

three-fourths of all the ore produced was of Bessemer grade. Salt is produced in large quantities in Michigan, and the number of barrels produced in 1907 was larger than any previous season. The output for the year was 6,298,463 barrels, as compared with 5,644,559 in 1905. The Michigan product is about one-fourth the total production of the United States. Since the establishment of the industry in the State the total output has been 129,330,998 barrels. The total annual producing capacity of the State is about 10,000,000 barrels, and not much more than 60 per cent. of this was utilized in 1907 and 1908. The coal-mining industry of Michigan is very considerable and the production in 1907 surpassed all previous records. In that year there were produced 1,931,011 tons, as against 1,424,427 tons in 1906. Much development work is going on in the coal region and the industry is destined to expand greatly. In the production of Portland cement Michigan ranks with the most important States. In 1907 there were manufactured 3,558,727 barrels, a slight falling off from the figures of 1906, which were 3,923,115 barrels. This decrease resulted from the car famine and the money stringency, which cut off the demand for cement much earlier than usual and necessitated the shutting down of many plants. The number of men employed in the industry in 1907 was 1,807. Among other minerals produced in the State were graphite, with a production of about 600 tons of graphite ore, equivalent to about 1,000,000 pounds of refined graphite; and gypsum, which is found in several parts of the State. Gold exists in Michigan, but has not yet been mined with profit. Other minerals found in the State are silver, salt, asbestos, marble, and sandstone. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$70,073,920, as compared with a value in 1906 of \$104,424,548. The production of copper in 1908 was 221,500,000 pounds, a slight gain over the production of 1907. It was estimated that the coal production of the State in 1908 would show a decrease of 25 to 35 per cent.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 60,420,000 bushels, valued at \$38,669,000, from 1,900,000 acres; winter wheat, 15,732,000 bushels, valued at \$15,260,000, from 874,000 acres; oats, 41,847,000 bushels, valued at \$20,505,000, from 1,409,000 acres; barley, 1,785,000 bushels, valued at \$1,107,000 from 70,000 acres; rye, 5,704,000 bushels, valued at \$4,050,000, from 368,000 acres; buckwheat, 742,000 bushels, valued at \$527,000, from 55,000 acres; potatoes, 23,400,000 bushels, valued at \$13,572,000, from 325,000 acres; hay, 3,954,000 tons, valued at \$34,598,000, from 2,727,000 acres. The production of wheat showed a considerable increase over 1907, when it was 10,500,000 bushels. Wheat acreage has decreased nearly 50 per cent. from that of 1900. The oat crop of 1908 showed a noticeable increase over that of 1907, which was 27,679,520 bushels. The production of potatoes showed a slight decrease, the figures in 1907 being 27,251,224 bushels. The State ranks first in the acreage and production of rye, surpassing in 1908 Pennsylvania, which previously had held first rank. Michigan is among the first States

in the acreage and production of sugar beets. The output of beet sugar in 1908-9 was estimated at 76,900 tons. The fruit and vegetables also rank among the leading agricultural products in the State. The number of farm animals on Jan. 1st, 1909, were as follows: Horses, 739,000; mules, 4,000; dairy cows, 891,000; other cattle, 993,000; sheep, 2,130,000; swine, 1,332,000. All classes except swine show an increase since 1900. The wool clipped in 1908 was valued at \$2,208,000.

MANUFACTURES. The census of 1904 reported 7,446 establishments classed as factories, with \$337,894,000 capital, 175,229 wage-earners, and \$429,120,060 worth of products, these figures being respectively 1.9, 36.8, 12.5, and 34.2 per cent. larger than in 1900. Of the wage-earners 24,270 were women and 3,283 were children under 16. The value of products of leading industries, and, in parentheses, the per cent. of increase over 1900, were: Lumber and timber products \$40,569,335 (24.8 per cent. decrease); foundry and machine shop products, \$31,291,195 (51.8); flour and grist mill products, \$26,512,027 (22.5); copper smelting, \$21,222,217 (22.4); furniture, \$18,421,735 (26.1); planing mills, \$14,375,467 (15.3); steam railroad cars, \$13,467,751 (35.8); carriages and wagons, \$12,101,170 (8.8); printing and publishing, \$10,892,967 (45.5); chemicals, \$9,775,704 (83.6); leather, \$9,340,349 (55.3); druggists' preparations, \$8,797,911 (78.7); agricultural implements, \$8,719,719 (37.5); and cheese, butter, and condensed milk, \$8,208,706 (109.5). Somewhat less valuable were cigars and cigarettes, iron and steel, paper and wood pulp, food preparations, and beet sugar. (See above, *Agriculture*, for beet sugar.) In spite of the great decrease in the value of lumber products, only Washington and Wisconsin reported larger values. The value credited to white pine was \$8,870,229, about one-half its value in 1900. The value of hemlock was \$8,810,920, and of maple, \$4,827,806. The State leads in druggists' preparations, and in 1904 ranked third in furniture, and fourth in copper smelting. Values attributed to principal centres were: Grand Rapids, \$31,032,589; Kalamazoo, \$13,141,767; Saginaw, \$10,403,508; Jackson, \$8,348,125; Lansing, \$6,887,415; Muskegon, \$6,319,441; and Flint, \$6,117,170.

FINANCES. The Report of the Treasurer for the fiscal year ending July 1st, 1908, showed that there remained a balance on hand July 1, 1907, of \$6,788,867.06. The receipts for the fiscal year ending June 30th, 1908, were \$11,058,072.78. The disbursements were \$14,837,193.10, leaving a balance on hand June 30th, 1908, of \$3,009,746.74. Of this sum, little more than one-half, \$1,550,124.93, was available for general purposes. Over \$1,000,000 belonged to the primary school fund, and nearly \$400,000 were assets of insolvent financial institutions being held in trust by the State Treasurer. The school trust funds of the State amounted, in 1908, to \$6,833,566.49. The chief sources of revenue were as follows: From county treasurers, \$5,121,827.27; from taxes, express and railroad companies, \$3,549,328.89; from fees, licenses, etc., \$142,845.39. The tax paid by the railroad companies in the State during the year amounted to \$3,499,367.27. The school moneys apportioned in the State amounted to \$3,739,155.

CHARITIES AND CORRECTIONS. The most important act in the legislative session of 1907 in relation to charities and corrections in the State was the enactment of the juvenile court law

after the invalidation of two previous acts along kindred lines. A juvenile court division of the Probate Court was established instead of a new court as in the previous acts. (See *JUVENILE COURTS*.) Among the State institutions are asylums for the insane at Kalamazoo, Pontiac, Traverse City, Newberry, and Ionia, and the Wayne County Asylum at Eloise; the Home for Feeble-minded and Epileptic at Lapeer; the State Public School at Coldwater; the School for the Deaf at Flint; School for the Blind at Lansing; Employment Institution for the Blind at Saginaw; Soldiers' Home at Grand Rapids; Industrial School for Girls at Adrian; Industrial School for Boys at Lansing; Michigan Reformatory at Ionia; Upper Peninsula Prison at Marquette; and the State Prison at Jackson. The aggregate appropriation for all these institutions per year is about \$2,000,000.

POLITICS AND GOVERNMENT. There was no meeting of the State legislature in 1908. On Jan. 22d a convention October completed its session since the previous October completed its work of constructing a new State constitution to supersede the constitution of 1850. The new constitution was ratified by the electors in November by a vote of 244,705 for, and 130,783 against. In March a grand jury in the county where Lansing, the State capital, is located indicted the State treasurer, Frank P. Glaizer, on a charge of misappropriating \$685,000 of State funds. His trial was not begun until late in December, and it went over into the new year. The same grand jury indicted probate judge John W. Dunn, of Arenac county, and city controller C. J. Barnett, of Bay City, on the charge of attempting to bribe a member of the legislature on the eve of the election of a United States senator. Also Representative Archibald F. Bunting and Jeremiah H. Anderson were indicted by the same grand jury, charged with irregularity in connection with expense accounts turned into the State during the legislative session of 1907. The prohibition area of the State was materially increased at the April election when 10 of 14 counties in which the question of license or no-license was submitted voted no license. Several cities in other counties also voted "dry." On April 8th Judge Knappen, of the United States court for the western district of Michigan, imposed a fine of \$20,000 on the Stearns Salt and Lumber Company of Ludington for accepting rebates from the Père Marquette Railroad on lumber shipments. Later the fine was reduced to \$10,000, which the company paid.

CONVENTIONS AND ELECTIONS. The Republican State convention met at Grand Rapids for the selection of delegates to the national convention. Delegates at large were instructed for William H. Taft for President. The Democratic State convention met at Lansing on May 20th. Although there had been shown a considerable sentiment throughout the State in favor of the nomination of Governor John A. Johnson of Minnesota, for President, it was not enough to be effective in the convention. Several counties sent delegates favorable to Johnson, but on the resolution to instruct delegates to vote for William J. Bryan there were no dissenting votes. To make this action still more binding the unit rule was adopted. Republican primaries for the nomination of candidates for governor and lieutenant governor were held Sept. 1st. The contestants for the gubernatorial nomination were Governor Fred M. Warner, who sought a third

term, Auditor General James B. Bradley, and State Good Roads Commissioner Horatio S. Earle. Warner was nominated, receiving 87,719 to 86,440 for Bradley, and 26,752 for Earle. The returns were contested by Bradley, but, following a ruling of the supreme court that the State Board of Canvassers could not go behind the election returns, he withdrew from the contest on Oct. 9th. There was no contest for the Republican nomination for lieutenant governor. Lawton T. Hemans was the Democratic nominee for governor.

The election on November 3d was remarkable for the disparity between the plurality received by Mr. Taft and that received by Governor Warner. The Republicans carried the State for Mr. Taft by over 160,000, while Governor Warner defeated Mr. Hemans by a vote of about 10,000. Every large city in the lower part of the State gave Hemans majorities with the single exception of Detroit. The detailed vote of the State for national and State ticket was as follows: Taft, 335,580; Bryan, 175,771; Chafin, 16,974; Debs, 11,586; Warner, 262,141; Hemans, 252,611.

OTHER EVENTS. On April 28th nine persons were killed and a score injured by a collision on the Detroit, Jackson & Chicago electric railway near Ann Arbor. The most destructive forest fires in years visited the State during September and October. Great loss of property occurred in the northeastern section of the Lower Peninsula and in parts of the Upper Peninsula. On Oct. 16th, seventeen persons, mostly women and children, were burned to death while trying to escape in a coal car from the burning village of Metz, in the Upper Lake Huron district. The heat caused the rails to spread, leaving the relief train stalled with woods on fire on all sides. Several other persons in other sections lost their lives by forest fires.

STATE OFFICERS: Governor, Fred M. Warner; Lieutenant-Governor, P. H. Kelley; Secretary of State, Fred'k C. Martindale; Treasurer, Al. E. Sleeper; Auditor, Oramell B. Fuller; Attorney-General, John E. Bird; Adjutant-General, William T. McGurrin; Superintendent of Education, Luther L. Wright; Commissioner of Insurance, James V. Barry; Commissioner of State Land Office, Huntley Russell—all Republicans.

JUDICIARY—Supreme Court: Chief Justice, Claudius B. Grant; Justices, William L. Carpenter, Rep.; Joseph D. Moore, Rep.; Aaron V. McAlvay, Rep.; R. M. Montgomery, Rep.; Frank A. Hooker; Charles A. Blair; Russell C. Osterlander; Clerk, Charles C. Hopkins, Rep.

The State legislature of 1909 is composed of 32 Republicans in the Senate and 98 Republicans and 2 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

MICHIGAN, UNIVERSITY OF. An institution of higher learning at Ann Arbor, Michigan, founded in 1837. In 1907-8 the attendance was 5,010, distributed as follows: Literature, science, and the arts, 1,795; engineering, 1,353; law, 791; medicine, 472; dentistry, 168; pharmacy, 101; summer session, 1,070. Fifty per cent. of these students came from Michigan; the remainder, representing every other State and Territory in the Union, and 22 foreign countries. In the autumn of 1908, the total registration was 4,656, to which should be added the registration of the summer school of 1908 of 551, making a total enrollment on Nov. 15th, 1908, of 5,207. The total number of women enrolled is about 725.

The total income of the university for 1907-8 was about \$1,104,000, of which about \$650,000 came from the State. The total number of instructors is about 410. During 1907-8, a new dental building was completed at a cost of \$125,000, and a memorial hall, largely the gift of the alumni, was nearing completion at the close of the year. An addition was made to the observatory of a new 40-foot dome, with a large new reflecting telescope. A chemical laboratory to cost \$250,000, and an addition to the main building of the engineering department to cost \$75,000, were in process of construction during 1908. The university has acquired a tract of about 90 acres of land in Ann Arbor to serve as a botanical garden and arboretum. A woman's athletic field of 7 acres has also been secured. About 1,500 acres of land, to be called the *Bogardus Engineering Camp* for its donors, have come to the university. This will serve as a summer engineering camp and probably will be developed into a geological station of importance. The library contained June 30th, 1908, 241,128 volumes.

MILITARY BALLOONING. See AERONAUTICS and MILITARY PROGRESS.

MILITARY PROGRESS. The year 1908 was not marked by any active military operations of importance in any part of the world, although the region of the Bosphorus threatened at one time to become a theatre of war and the colonial troops of most countries continued operations of a more or less serious nature against hostile tribes. The year was also devoid of any radical changes in personnel or startling developments of war material, being in this respect, like the two or three preceding years, devoted rather to the digestion and application of the lessons of recent wars. Each important military nation had worked out these lessons for itself, demonstrated the deductions on the manœuvre-ground, and was quietly adapting the military policy of the nation to the new conditions.

The lines along which the greatest activity occurred in 1908 may be briefly indicated, for the different branches of the service, as follows:

INFANTRY. A great deal of attention was given to increasing the efficiency of the individual soldier by various means. In two or three of the principal armies of the world the pay and rations of enlisted men were increased, notably in Italy, France, Russia, and the United States. Nearly all countries conducted experiments with a view to lightening the pack carried by foot-soldiers, the most radical departure from previous practice being that of Great Britain, where the pack was divided into two distinct parts, one for fighting only, and the other an additional pack to be carried on the march, and left behind when going into battle.

MACHINE GUNS. Machine guns continued and even increased in favor, so that they were an important part of all mobile armies, being attached to mounted, as well as to dismounted troops. These guns have a narrow cone of dispersion and produce a powerful but highly concentrated effect. They find their logical employment, especially in mountains, against narrow fronts and defiles. They do not lend themselves to long, drawn-out action, principally because they heat too readily and use too much ammunition, which latter is all the more regrettable because the supply is so difficult. They should not be engaged for any length of time in

frontal action. Only exceptional circumstances warrant this, and then only for flanking purposes and under cover. There are many different types of these guns, of which the most popular is the Maxim, adopted by most countries, and the simplest, the Schwarzlose, which has only twelve pieces in its breach mechanism as against forty-nine pieces for the Maxim and thirty-five pieces for the Hotchkiss.

SMALL ARMS. Experiments were continued with automatic rifles in the endeavor to overcome the weight, the time required to go into action, and the prominence of the gun as a target. The new sharp-pointed bullet, known as the model 1906 in the United States, the S bullet in Germany, and the D bullet in France, amply proved its superiority and was adopted in several other countries, among them being Spain and Austria, where the new bullet took the form of a steel point or needle, in a lead case, and the introduction of which necessitated the re-sighting of all rifles and the adoption of new powder.

FIELD ARTILLERY. The perfection of fire control was the principal subject of study in the field artillery of armies during the year 1908. Nearly all countries completed their rearmament with rapid fire field guns, and this proved the largest single item of expenditure for the previous eight years. The development of heavier guns for the artillery of mobile armies was a marked characteristic of the past year. Field artillery armament came to be classified as indicated below:

1. *Light field guns*, with which all modern armies are supplied. These guns were all of the latest rapid fire type, the oldest gun in service being that of Norway, which was adopted in 1900, and the newest, of which there was an accurate detailed description, that of Greece, adopted in 1907, although several countries bought new guns in 1908. All of the twenty-seven countries adopting new guns for their field artillery in the previous five years had practically completed their rearmament at the beginning of 1909. The usual calibre of these guns was about three inches; in eighteen countries it was 2.95 inches, and this was the smallest calibre, the largest being the 3.3 inch gun of Great Britain. The shrapnel fired by these guns varies between 12.1 and 15.95 pounds, except for the British gun mentioned above, which fired a shrapnel weighing 18.48 pounds; the usual weight was about 14.3 pounds. The muzzle velocity varies from 1,525 feet per second to 1,940 feet per second, the latter referring to the Russian gun. Complete details of all these guns may be found in the *Journal of the United States Infantry Association*, January, 1909. 2. *Mountain guns* were largely increased in importance by the experiences of the Russo-Japanese war and were considered a part of the equipment of all armies. Strangely enough, China was probably the very first country to adopt a rapid fire mountain gun, having purchased three six-gun batteries from Schneider in 1905, which order was subsequently increased. Portugal and Greece bought Schneider guns in 1908 and Russia and Switzerland bought a similar gun from Krupp, the most powerful of all being that of Greece. The most important development of mountain guns during the past year was the "differential recoil" mechanism of the French automatic mountain gun, which may be applied to any gun, increasing its power by about thirty per cent. 3. *Horse*

artillery guns did not make as much progress as the other types, the latest development being that of the British Army, which was said to be a very wonderful weapon. 4. *Light field howitzers* had a steady development and were considered as an essential part of the armament in all countries. The difficulty of adapting the long recoil system to this class of ordnance had been overcome. 5. *Heavy field guns* commanded much attention throughout the world and experiments were conducted in nearly all countries, notably Japan, Russia, Italy, Portugal, Servia, Switzerland, and Spain, looking to the adoption of a suitable type. The Japanese gun of 5.9 inch calibre fired a projectile of about 80 pounds, and was probably the equal of any gun of its class in service.

The United States Ordnance Department continued the development of field artillery armament, and designed a new system of guns and howitzers, of which only the light field gun had been issued to the service in general. The guns which were fairly representative of prevailing tendencies may be taken as a typical system and are classified as follows:

Designation	Calibre	Weight of projectile	Weight behind teams, lbs.
Mountain howitzer....	3.	15	300 (packs)
Light gun	3.	15	4000
Light howitzer	3.8	30	4000
Howitzer	4.7	60	6000
Gun	3.8	30	6000
Heavy field gun	4.7	60	8000
Heavy field howitzer.	6.	120	8000

In this system, which is a very complete one, it will be seen that each gun is supplemented by a howitzer of equal mobility, but firing a projectile twice as heavy as that of the gun, and a gun and howitzer of the same calibre fire the same ammunition.

CAVALRY. Dismounted action of cavalry continued to be the principal subject of study for this branch of service, and was a matter of ever increasing importance. In several countries the lance was discarded in favor of a long bayonet, carried as a side arm, and attached to the rifle in order to make the dismounted cavalry as nearly equal to the infantry as possible, and to enable it to carry fire-action to a successful issue. The number of armies attaching machine guns to cavalry regiments was largely increased, and this may be said to be the universal custom prevalent. Cavalry machine guns were usually carried on pack animals and fired from a tripod, and their rôle was to increase the fire power of cavalry, support it everywhere, and to assist in mounted and dismounted action. It should participate in the decisive action and pursue the enemy with a hot fire or cover a rally or retreat, as the case may be. The tendency of the year was to increase the proportion of cavalry to other arms of the service, as well as to increase the ballistic properties of the cavalry fire arm.

COAST ARTILLERY. Artillery of position as a means of coast defense received a great impetus from the conduct of the defense of Port Arthur. Italy, Germany, and Great Britain gave especial

attention to the strengthening of their harbor defense during the year 1908. The subject showed increasing popularity with military students, as is evidenced by the large number of articles in the professional magazines. A harbor well provided with heavy sea-coast guns and submarine mines is impregnable against naval attack. For this reason the land defense of sea-coast forts has become a subject of paramount importance and received much attention during the year, especially in the countries having the strongest coast forts.

SUBMARINE MINES. Submarine mines attained greater importance than ever before, as a result of their successful use in the Russo-Japanese war. Extensive experiments in mine laying were carried out in most military countries, and many improvements were made in the various systems in use. Mine planting vessels were constructed, in some countries armored cruisers being converted for this purpose, and an unprecedented activity in this field was everywhere visible. In spite of the limitations imposed by the last Hague Conference, floating mines continued in favor.

MILITARY BALLOONING. Military ballooning made more rapid strides than any other single department of the art and science of war. The success of aeroplanes was the distinctive feature, the Americans, Wilbur and Orville Wright, being the leaders in this class. See **AERONAUTICS**. All military budgets for the year carried considerable appropriations for aeroplanes, and laws governing their use began to appear in different countries, as well as specially designed motor cars armed with rapid fire guns to attack hostile airships.

For further details of military progress see the heading *Army*, under the different countries.

MILITIA. The year was a notable one in the history of the militia of the United States. It was marked by the establishment on Feb. 12 of a division in the office of the Secretary of War, to be known as the Division of Military Affairs, and by the passage of legislation which makes the militia in effect a body of reserves, to be called out at the discretion of the President. The creation of a Division of Military Affairs was made necessary by the increasing volume of general business pertaining to the militia, and special business connected with the keeping of the accounts of funds allotted to the several States, Territories, and the District of Columbia, especially under the Act of May 27, 1908, which placed the militia affairs upon a new footing. The division was made necessary also by the developing interest arising from the tendency of the militia to depend more and more on the Regular Establishment for information, instruction, and guidance in questions of equipment, drill, and training, and in business involved in connection with the joint field manoeuvres and coast defense exercises. The jurisdiction of this division embraces all administrative duties involving the armament, equipment, discipline, training, education, and organization of the militia; the conduct of camps of instruction, and participation in the field exercises and manoeuvres of the regular army; the mobilization and the relations of the militia to the regular army in time of peace; and all other matters which do not, under existing laws, regulations, orders, or practice, come within the jurisdiction of the general staff of any division or bureau in the

War Department. Lieut.-Col. Erasmus M. Weaver of the Coast Artillery, who, up to Feb. 14, had been on duty in the office of the Chief of Artillery, was on that date made chief of the Division of Military Affairs.

The Act of May 27, 1908, which amends the Act of Jan. 21, 1903, and which establishes the new relations of the State militia forces to the Federal government, contains, among others, the following provisions: The militia shall consist of every able-bodied male citizen of the respective States and Territories and the District of Columbia, and every able-bodied male of foreign birth who has declared his intention to become a citizen who is more than 18 and less than 45 years of age; shall be divided into two classes: the Organized Militia to be known as the National Guard of the State, Territory or District of Columbia, or by such other designation as may be given in the representative States and Territories; the remainder to be known as the reserve militia. The provisions of this Act apply only to the militia organized as a land force. The Organized Militia is composed of the regularly enlisted organized and active militia in the several States and Territories, and the District of Columbia, who had, previous to the passage of this amendment, participated, or who shall thereafter participate in the apportionment of the annual appropriation provided by the revised statutes of the United States. On and after Jan. 21, 1910, the organization, armament and discipline of the Organized Militia in the several States, Territories and the District of Columbia is to be the same as that which is prescribed for the regular army of the United States, subject to certain provisions. It is provided that whenever the United States is invaded or in danger of invasion from any foreign nation, or of rebellion against the authority of the government of the United States, or the President is unable, with the regular force at his command, to execute the laws of the Union, it shall be lawful for the President to call forth such part of the Militia of the State or of the States or Territories or of the District of Columbia as he may deem necessary to repel such invasion, suppress such rebellion, or to enable him to execute such laws and to issue his orders for such purpose through the Governors of the respective States or Territories, or through the commanding general of the militia of the District of Columbia, from which State, Territory or District such troops may be called to such officers of the Militia as he may think proper. The President may specify in such a call the period for which service is required, and the militia so called shall continue to serve during the period so specified, either within or without the territory of the United States, unless sooner relieved by order of the President. The Organized Militia shall be called into the service of the United States in advance of any volunteer force which it may be determined to raise.

When the militia of more than one State is called into actual service of the United States by the President, he may in his discretion apportion them among such States or Territories or to the District of Columbia according to the representative population. The militia, when called into the actual service of the United States, is to be subject to the same Rules and Articles of War and the same pay and allowances as the regular troops of the United States.

It is provided that in each State, Territory and the District of Columbia an Adjutant-General shall be appointed to perform such duties as may be prescribed by the laws of such State or Territory and make returns to the Secretary of War of the strength of the organized militia and such other reports as may from time to time be required by the Secretary of War. An abstract of the returns and reports of these adjutant-generals shall be transmitted each year by the Secretary of War with his Annual Report to Congress. A member of the militia, disabled by reason of wounds or disabilities received or incurred in the service of the United States, is entitled to all the benefits of the pension laws existing at the time of his service.

This Act marks the first time that the powers of Congress with respect to the militia, which are granted by the Constitution, have been fully exercised. The Act approved Jan. 21, 1903, was a long step in advance toward exercising these powers, but it failed in certain essential particulars to create a body of organized militia that would be of general utility in case of emergency, in that the authority given to the President to call forth the militia was so restricted as to limit the period of service of the militia called forth to nine months and as to prohibit the use of the troops so called to the service of the United States beyond the limits of the United States. The Act of May 27 removes these two restrictions and makes the body

State or Territory	General officers and general staff	Engineers	Cavalry	Field artillery	Machine-gun batteries	Coast artillery	Infantry	Hospital corps	Signal corps	Total
Alabama	39	3	274	449		57	2,403	1		3,226
Arizona	1		36				334	2		373
Arkansas	34						1,262			1,296
California	36		167				1,985	33	54	2,275
Colorado	15		170	82			435		11	713
Connecticut	31		61	83		782	1,648	39	58	2,707
Delaware	9						369	10		388
District of Columbia	20			61			1,203	33	18	1,335
Florida	24						1,218	12		1,254
Georgia	27		370	149		172	2,263	37		3,018
Hawaii	12	1					406	33	40	492
Idaho	8						522			530
Illinois	86		370	254			5,386	165	52	6,313
Indiana	31	1		241			1,914	78	42	2,307
Iowa	18	1					2,573	64	1	2,657
Kansas	21	1		78			1,262	26	15	1,403
Kentucky	26	2					1,623	89		1,740
Louisiana	20	1	191	142			822		72	1,248
Maine	13						1,243	26		1,282
Maryland	20		57			48	1,751	28		1,904
Massachusetts	88		184	303		784	3,991	122	54	5,526
Michigan	45	68	119	105			2,373	61	90	2,861
Minnesota	35	73		204			2,455	41		2,808
Mississippi	34		52	53			1,051	12		1,202
Missouri	32			229			2,671	64	23	3,019
Montana	7						415			422
Nebraska	17						1,280	53	57	1,407
Nevada a										
New Hampshire	29		61	85			1,393			1,568
New Jersey	102		137	158			3,858	22	56	4,333
New Mexico	6		36				216		16	274
New York	249	713	535	404		2,213	9,985	377	170	14,746
North Carolina	46	3		65			1,889	36		2,039
North Dakota	12			53			634	4		703
Ohio	55	203	112	106			4,790	190	89	5,545
Oklahoma	6	35					614	19	39	713
Oregon	16			141			1,243	44		1,444
Pennsylvania	123		359	154			9,266	146		10,048
Rhode Island	30	1	101	64	54		790	18	19	1,077
South Carolina	15	1					1,839	34		1,889
South Dakota	14		44				563	5		626
Tennessee	7		57				1,477			1,541
Texas	37	1	196	96			1,875		29	2,234
Utah	2			45			290	14	16	367
Vermont	4			116			667	12	45	844
Virginia	29			268			1,669			1,966
Washington	10	1	42				588	18	36	695
West Virginia	27	1					1,056			1,084
Wisconsin	23		71	105			2,780	40		3,019
Wyoming	9						467	4		480
Total	1,600	1,110	3,802	4,298	54	4,156	92,807	2,012	1,102	110,941

^a No organized militia.

of the Organized Militia of the several States available for service during the period of the enlistment of the officers and men within and without the boundaries of the United States. It will not be necessary as heretofore to go through the formalities of newly enlisting the Organized Militia when called by the President. The call of the President itself accomplishes the transfer of the Organized Militia, which is called forth by him from its State relations to its Federal relations. It becomes a part of the army of the United States and the President becomes its commander-in-chief. He is also the exclusive judge of the existence of an emergency which would justify the calling forth of the Organized Militia. Provisions are made in the enactment for the mobilization, transportation, and equipment of the Organized Militia on its new footing.

On May 29, 1908, the Secretary of War appointed a body of five officers, consisting of Brigadier-General Nelson H. Henry, Adjutant-General of New York; Brigadier-General Oran Perry, Adjutant-General of Indiana; Brigadier-General Charles R. Boardman, Adjutant-General of Wisconsin; Brigadier-General James A. Drain, Chief of Ordnance of Washington; and Brigadier-General Bibb Graves, Adjutant-General of Alabama, to represent the Organized Militia of the United States in consultation with the Secretary of War respecting the condition, status, and needs of the whole body of the militia. This body met in Washington from June 15 to 17, and as a result of their deliberations, made certain recommendations to the Secretary of War in regard to equipment, ammunition, and inspection of the militia.

During 1908, in addition to field manœuvres, participated in by both regulars and militia and held on a large scale at Pine Plains, N. Y., Chickamauga Park, Ga., Fort Benjamin Harrison, Ind., Fort Riley, Kan., Fort D. A. Russell, Wyo., Leon Springs, Tex., American Lake, Wash., and Atascadero, Cal., joint army and militia coast defense exercises were held in Massachusetts, Rhode Island, Connecticut, New York, Delaware, Maryland, District of Columbia, North Carolina, South Carolina, Georgia, Florida, and Alabama. An approximate total of 45,000 officers and men of the Organized Militia participated in the joint manœuvre camps of the field troops, and approximately 10,100 officers and men in the joint army and militia coast defense exercises. The reports from these manœuvres and exercises indicate that they were successfully conducted. The general scheme of the joint manœuvres of the field troops contemplates that they shall take place only in every alternate year, and that each State on its own initiative shall arrange to have yearly encampments of all the State forces within its own borders.

The chief of the Division of Militia Affairs, in his annual report, states that it is believed from inquiry of adjutants-general of the States, that the average efficiency of the militia is progressing toward a higher standard from year to year. There is a disposition on the part of the military authorities of those States whose standard is below what may be considered the average, to compare means and methods with those of the States having the best standards.

The table on the preceding page shows the strength (officers and enlisted men) of the Organized Militia by branches of the service, as

shown by the special inspection made by the United States inspection officers during the spring of 1908.

MILK. See DAIRYING.

MILTON, WILLIAM HALL. An American legislator, United States Senator (Democrat) from Florida. He was born in Jackson County, Fla., on Mar. 2, 1864, was educated in the public schools and at the Agricultural and Mechanical College at Auburn, Ala., and was admitted to the bar in 1890. He served as city clerk of Marianna, Fla., from 1885 to 1893, as State legislator in 1889, and as presidential elector in 1892. In 1894 he was appointed United States Surveyor-General by President Cleveland, and in 1898 was elected Mayor of Marianna. He was for some years president of the board of managers of the State Reform School at Marianna. On Mar. 27, 1908, he was appointed United States Senator by Governor Broward to fill the vacancy caused by the death of William James Bryan (q. v.) His term expires on Mar. 3, 1909.

MINERALOGY. The work of Penfield and Stanley on the chemical constitution of the amphiboles, reviewed in the YEAR BOOK for 1907, brought to light the existence of fluorine and water as integral parts in the molecular structure of these minerals and evidence that the amphiboles are essentially metasilicates. As a further contribution to the subject, careful analyses were made of five specimens of tremolite from different localities selected by reason of the exceptional purity exhibited by the examples. The results of the analyses, as communicated by E. T. Allen and J. K. Clement, show from 1.72 to 2.5 per cent. of water, which is in practical agreement with the previous work of Penfield and Stanley. The writers were disinclined, however, to regard the water as chemically combined, since it was driven off very gradually with rising temperatures and without apparent effect upon the homogeneous character of the mineral. They hold the opinion rather that the water is dissolved and that tremolite is a solid solution. The effect of radium emanations in changing the color of minerals has been the subject of numerous experiments. By heating some minerals to high temperatures, K. Simon found that they lost their characteristic coloration, but on subjecting the stones to radio-activity they again assumed colors like the original ones. Thus, zircon after bleaching by heat became brown, amethyst violet, smoky quartz brown, and rose topaz orange red. The experiments seemed to indicate that the coloration is due to the presence of inorganic substances different from the minerals themselves. Though the coloring property inherent to these substances undergoes change by heating, the change can be reversed by radio-activity, and in some instances by exposure to sunlight. Several new minerals were described during the year. *Natrochalcite* occurs in bright emerald-green crystals of monoclinic habit, and is a hydrous sulphate of copper and sodium. It is found in old copper mines in the district of Chuquicamata, Antofagasta Province, Chile. *Palmierite* is an anhydrous sulphate of lead, potassium, and sodium, found in the lava of the Vesuvian eruption of April, 1906. It crystallizes in hexagonal scales. *Rutherfordine* is the name given to a yellow uranyl carbonate, resembling uranochre in appearance, from German East Africa. The mineral possesses strong radio-active properties.

Tarbuttite, a hydrous phosphate of zinc, forms colorless or faintly colored crystals, and is found in the Broken Hill mines of Rhodesia. *Hulsite* comes from the tin-bearing region of the Seward Peninsula, Alaska. It is an iron-magnesian borate of black color, prismatic cleavage, and a hardness of 3 on the Mohs scale. The original occurrence is on Brooks Mt., near the contact of granite and limestone. *Paigeite*, from the same vicinity, is a coal black lustrous mineral, resembling hulsite in composition, but with a smaller percentage of boron. See DIAMONDS.

MINERAL PRODUCTION OF THE UNITED STATES. The table of the mineral and metal production of the United States in 1906 and 1907 given below has been taken from the annual reports for *Mineral Resources of the United States*, of the United States Geological Survey, published in 1908. In 1907, for the first time in the history of the mineral industry of the United States, the value of the total production exceeded \$2,000,000,000, and also it was somewhat in excess of that of 1906, which amounted to \$1,904,007,034, the gain amounting to 8.68 per cent. as compared with 17.15 per

cent., which represented the gain for 1906 over 1905. Iron and coal still head the list as the most important mineral products, and show considerable increase, but the gains were general in both metallic and non-metallic minerals. In 1908 the mineral industry in common with other business suffered from the general depression and financial conditions, and as a result there was a considerable curtailment in the production. Copper and petroleum alone showed any marked increase, gold held its own with a small gain, while among manufactured products copper sulphate and zinc oxide showed an increase. The accompanying preliminary statistics published by *The Engineering and Mining Journal*, though issued subject to revision, indicate very closely the output of the most important products for the year 1908, as compared with similar figures for 1907. Detailed statistics of production and information of the progress of the various industries during 1908 and the years immediately preceding will be found under the following captions: ALUMINUM; ANTIMONY; ARSENIC; COAL; COKE; COPPER; GOLD; IRON AND STEEL; LEAD; MANGANESE; MERCURY; MINERAL PRODUCTION; NICKEL; SILVER; PETROLEUM; PLATINUM; TIN; ZINC.

MINERAL PRODUCTION IN THE UNITED STATES, 1906-1907.

From *Mineral Resources of the United States*, 1907, U. S. Geological Survey.

Product	1906		1907	
	Quantity	Value	Quantity	Value
Metallic.				
Pig iron (a) spot value (b).....(c) long tons..	25,307,191	\$505,700,000	25,781,361	\$529,958,000
Silver, commercial value (d) .....troy ounces..	56,517,900	38,256,409	56,514,700	37,299,700
Gold, coining value (e) .....do....	4,565,333	94,373,800	4,374,827	90,435,700
Copper, value at New York City.....pounds..	917,805,682	177,595,888	868,996,491	173,799,300
Lead (f) value at New York City .....short tons..	350,153	39,917,442	365,166	38,707,596
Zinc, value at New York City.....do....	199,694	24,362,668	223,745	26,401,910
Quicksilver, value at San Francisco .....(g) flasks..	26,238	958,634	21,567	828,931
Aluminum, value at Pittsburg.....pounds..	(h) 14,910,000	4,262,286	(h) 17,211,000	4,926,948
Antimony (i) value at San Francisco .....short tons..	1,766	602,949	2,022	622,046
Nickel (j) value at Philadelphia .....pounds..	.....	(k) .....	.....	(k)
Tin.....do....	(l)	35,600	(l)	33,285
Platinum, value (crude) at New York City, troy ounces..	1,439	45,189	357	10,589
Total value of metallic products.....	.....	\$886,110,856	.....	\$903,024,005
Non-Metallic (Spot Values).				
Bituminous coal (m) .....short tons..	342,874,867	\$381,162,115	394,759,112	\$451,214,842
Pennsylvania anthracite.....long tons..	63,645,010	131,917,694	76,432,421	163,584,056
Natural gas.....do....	.....	46,873,932	.....	52,866,885
Petroleum .....(n) barrels..	126,493,936	92,444,735	166,095,335	120,106,749
Clay products (o) .....do....	.....	161,032,722	.....	158,942,369
Cement .....(p) barrels..	51,000,445	55,302,277	52,230,342	55,903,851
Lime.....short tons..	3,198,087	12,480,653	3,084,799	12,640,512
Sand-lime brick.....do....	.....	1,170,005	.....	1,225,769
Slate .....do....	.....	5,668,346	.....	6,019,220
Stone (q) .....do....	.....	66,378,794	.....	71,105,805
Corundum and emery.....short tons..	1,160	44,310	1,069	12,294
Abrasive quartz and feldspar.....do....	24,082	121,671	17,435	126,582
Garnet for abrasive purposes.....do....	4,650	157,000	7,058	211,686
Grindstones .....do....	.....	744,894	.....	896,022
Infusorial earth and tripoli.....short tons..	8,099	72,108	.....	104,406
Millstones .....do....	.....	48,590	.....	31,741
Oilstones, etc.....do....	.....	268,070	.....	264,188
Arsenious oxide.....pounds..	1,474,000	63,460	3,502,000	163,000
Borax (crude).....short tons..	58,173	1,182,410	52,850	1,121,520
Bromine .....pounds..	1,283,250	165,204	1,379,496	195,281
Fluorspar .....short tons..	40,796	244,025	49,486	287,282
Gypsum .....do....	1,540,585	3,837,975	1,751,748	4,942,264
Lithium minerals.....do....	383	7,411	530	11,000
Marls .....do....	19,104	7,341	14,091	8,429
Phosphate rock.....long tons..	2,080,957	8,579,437	2,265,343	10,653,558
Pyrite .....do....	261,422	931,305	247,387	794,949
Sulphur .....do....	294,153	5,096,678	293,106	5,142,850
Salt .....(r) barrels..	28,172,380	6,658,350	29,704,128	7,439,551
Barytes (crude).....short tons..	50,231	160,367	89,621	291,777
Cobalt oxide.....pounds..	.....	(k)	(k) .....	.....
Mineral paints (s) .....short tons..	66,033	2,161,461	71,973	2,979,158
Zinc white.....do....	74,680	5,999,375	71,784	6,490,660
Asbestos .....do....	1,695	28,565	653	11,899
Asphalt .....do....	138,059	1,290,340	223,861	2,826,489
Bauxite .....long tons..	75,332	368,311	97,776	480,330
Chromic iron ore.....do....	107	1,800	290	5,640
Feldspar.....short tons..	75,656	401,531	84,549	499,069
Fibrous talc.....short tons..	61,672	557,200	67,800	626,000

Product	1906		1907	
	Quantity	Value	Quantity	Value.
Non-Metallic (Spot Values). Cont.				
Fuller's earth.....do....	32,040	\$265,400	32,851	291,773
Glass sand.....do....	1,089,430	1,208,788	1,187,296	1,250,067
Graphite (crystalline).....pounds..	5,887,982	238,064	4,947,840	171,149
Graphite (amorphous).....short tons..	16,853	102,175	26,803	125,821
Magnesite.....do....	7,805	23,415	7,561	22,683
Manganese ores.....long tons..	6,921	88,132	5,604	63,369
Manganiferous ores.....do....	41,300	122,400	103,844	259,473
Mica (sheet).....pounds..	1,423,100	252,248	1,060,182	349,311
Mica (scrap).....short tons..	1,489	22,742	3,025	42,800
Mineral waters.....gallons sold..	48,108,580	8,028,387	52,060,520	7,331,503
Monazite and zircon.....pounds..	847,275	152,560	548,152	65,800
Precious stones.....do....	.....	(t)589,000	.....	1735,800
Pumice stone.....short tons..	12,200	16,750	8,112	33,818
Quartz.....do....	66,697	243,012	22,977	157,094
Rutile.....do....	.....	(u)	.....	(u)
Sand, molding, building, etc., and gravel.....short tons..	31,842,572	11,489,420	40,664,622	13,242,002
Talc and soapstone.....do....	58,972	874,356	72,010	905,047
Tungsten.....do....	928	348,867	1,640	890,048
Uranium and vanadium.....do....	.....	(u)	.....	(u)
Total value of non-metallic mineral products.....	.....	\$1,017,696,178	.....	\$1,166,165,191
Total value of metallic products.....	.....	886,110,856	.....	903,024,005
Estimated value of mineral products unspecified (u)...	.....	200,000	.....	100,000
Grand total.....	.....	\$1,904,007,034	.....	\$2,069,289,196

(a) Production of iron ore—1906: 47,749,728 long tons; value at mines, \$100,597,106. 1907: 51,720,619 long tons; value at mines, \$131,996,147. Statistics for iron ore and for value of pig iron are collected by the Survey; statistics for output of pig iron are furnished by the American Iron and Steel Association.

(b) By "spot" value is meant value at the point of production.

(c) Long tons are tons of 2,240 avoirdupois pounds; short tons are tons of 2,000 avoirdupois pounds.

(d) Average price per troy ounce in 1906 was 67 cents; in 1907 it was 66 cents.

(e) Prior to 1906, coining value, \$20.6718 per troy ounce; in 1906, coining value, \$20.671834; in 1906 and 1907, coining value, \$20.671834626323.

(f) The product from domestic ores only.

(g) Of 76½ avoirdupois pounds net; of 75 avoirdupois pounds net since June, 1904.

(h) Consumption in 1904, 1905, 1906, and 1907.

(i) Includes antimony smelted from imported ores and antimony contained in hard lead.

(j) Includes nickel in copper-nickel alloy and in exported ore and matte.

(k) Included under unspecified.

(l) In 1906, 2,500 pounds of metallic tin, 55 short tons of concentrates from Alaska, and 14 short tons of concentrates from North Carolina and South Carolina.

(m) Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. 1906: 36,401,217 short tons; value at ovens, \$91,608,034. 1907: 40,779,564 short tons; value at ovens, \$111,539,126.

(n) Of 42 gallons.

(o) Value of clay mined and sold as unmanufactured clay. 1906: \$3,245,256. 1907: \$3,448,548.

(p) Of 380 pounds net.

(q) Includes limestone for iron flux, but not including grindstones.

(r) Of 280 pounds net. Value is for net product exclusive of cost of packages.

(s) Includes metallic paint, ochre, umber, mortar, colors, sienna, ground slate, shales, sublimed blue lead, sublimed white lead, and zinc lead.

(t) Includes pearls valued at \$381,000 in 1906 and at \$264,500 in 1907.

(u) Includes nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers; and molybdenum, nickel and cobalt, tantalum, titanium, uranium, and vanadium, valued together at \$31,945.

MINERAL AND METAL PRODUCTION OF THE UNITED STATES, 1907-1908.

Preliminary Statistics. *Engineering and Mining Journal*, Jan. 9, 1909.

Product	Custom-ary Measure	1907			1908			Changes in Quantity
		Quantity	Value		Quantity	Value		
			Total	Per unit		Total	Per unit	
Non-Metallic:								
Coal, bituminous....	Short ton	388,222,868	\$463,654,776	\$1.20	338,688,000	\$390,103,984	\$1.15	D. 49,534,868
Coal, anthracite.....	Short ton	86,341,832	198,653,218	2.30	80,280,000	184,682,317	2.30	D. 6,061,832
Iron ore.....	Long ton	52,955,070	117,560,255	2.22	34,202,000	61,563,100	1.80	D. 19,339,030
Limestone flux.....	Long ton	15,722,801	7,480,121	0.475	9,650,000	3,860,000	0.40	D. 6,072,801
Petroleum.....	Barrel	164,347,930	123,260,948	0.75	184,734,678	131,779,288	0.71	I. 20,386,748
Manufactured:								
Coke.....	Short ton	36,993,622	99,055,150	2.687	22,697,000	53,926,887	2.376	D. 14,296,622
Copper sulphate.....	Pound	44,867,650	2,804,228	0.0625	45,144,000	2,198,513	0.0487	I. 276,350
Lead, sublimed white	Short ton	8,700	1,026,600	118.00	9,100	973,700	107.00	I. 400
Zinc oxide (a).....	Short ton	85,390	7,731,100	90.54	65,100	5,876,040	90.28	D. 20,290
Metallic:								
Copper.....	Pound	879,241,766	181,660,142	0.20661	952,395,477	127,849,569	0.13424	I. 73,153,711
Gold.....	Oz. fine	4,375,215	90,435,700	20.67	4,659,562	96,313,256	20.67	I. 284,347
Iron, pig.....	Long ton	25,442,013	580,077,896	22.80	15,828,000	268,284,600	16.95	D. 9,953,327
Lead.....	Short ton	350,130	37,288,845	106.50	323,841	27,202,644	84.00	D. 26,291
Quicksilver.....	Flasks	20,932	780,506	37.29	20,000	840,000	42.00	D. 932
Silver.....	Oz. fine	56,514,700	36,919,358	0.65327	51,798,053	27,382,523	0.52864	D. 4,716,647
Zinc.....	Short ton	249,612	29,763,735	119.24	207,735	19,635,112	94.52	D. 41,877

(a) Includes zinc-lead pigment.

MINNESOTA. One of the North Central Division of the United States. Its area is 84,682 square miles. The population according to a Federal census of 1908 was 2,117,022.

MINERAL PRODUCTION. The chief mineral production of the State is iron ore, and of the total value of the iron output Minnesota contributes over five-sixths. In 1907, 28,969,658 long tons were produced, valued at \$76,668,836. It is important compared with the production of 1906, which was 25,364,077 tons, valued at \$51,799,256. The production and consumption of iron ore in 1908 showed a very considerable decrease as the result of the cutting down of operations due to financial conditions. The Lake Superior ores furnished the raw material for from 75 to 80 per cent. of the pig iron production. The estimated output of the Lake Superior region for 1908 was 25,927,000 tons. A portion of this production (about 30 per cent.), however, is to be credited to Michigan and Wisconsin. In addition to iron, clay products were produced in the State in 1907 to the value of \$1,689,933; mineral waters, \$524,800; stone, \$1,582,126, and other products, \$1,441,313. The value of the mineral products of the State, exclusive of iron, in 1907, was \$5,457,422.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the figures of the United States Department of Agriculture, were as follows: Corn, 46,835,000 bushels, valued at \$25,759,000, from 1,615,000 acres; spring wheat, 68,557,000 bushels, valued at \$64,444,000, from 5,356,000 acres; oats, 59,004,000 bushels, valued at \$25,372,000, from 2,682,000 acres; barley, 32,500,000 bushels, valued at \$15,925,000, from 1,300,000 acres; rye, 1,628,000 bushels, valued at \$1,026,000, from 88,000 acres; buckwheat, 91,000 bushels, valued at \$66,000, from 5,000 acres; flaxseed, 4,526,000 bushels, valued at \$5,431,000, from 427,000 acres; potatoes, 11,020,000 bushels, valued at \$6,171,000, from 145,000 acres; hay, 1,527,000 tons, valued at \$8,428,000, from 909,000 acres. In the acreage and production of wheat Minnesota ranks third, being surpassed only by Kansas and North Dakota, while in spring wheat alone, it occupies first rank. The wheat crop increased in 1908 from the figures of 1907 which were 67,600,000 bushels. In the production of barley, Minnesota occupies first place. The crop in 1908 showed a considerable increase over that of 1906, which was 26,663,000 bushels. In the production of oats, Minnesota is surpassed only by Iowa and Wisconsin. There was a slight decrease in 1908 from the production of 1907, which was 61,985,000 bushels. A small quantity of beet sugar is produced in the State. The farm animals on Jan. 1, 1909, were estimated as follows: Horses, 752,000; mules, 9,000; dairy cows, 1,092,000; other cattle, 1,253,000; sheep, 468,000; swine, 1,153,000. Compared with 1900 these figures show an increase of 10 per cent. for dairy cows and about 25 per cent. for other cattle. The wool clipped in 1908 was 2,531,250 pounds, valued at \$520,931.

MANUFACTURES. Very considerable progress was made in manufacturing between the census of 1900 and that of 1905. The latter reported 4,756 establishments classed as factories, with \$184,903,000 capital, 69,636 wage-earners, and products valued at \$307,858,000, these figures being, respectively, 16.1, 38.9, 7.9, and 37.6 per

cent. larger than in 1900. The value of products of the five leading industries were: Flour and grist mills, \$122,059,000; lumber and timber products, \$33,183,300; slaughtering and meat packing, \$17,526,700; cheese, butter, and condensed milk, \$12,871,100; and printing and publishing, \$11,105,300; these values were, respectively, 47.1, 4.9, 124.4, 51.8 and 44.6 per cent. greater than those of 1900. Minnesota is pre-eminent in the flour milling industry. The products in 1905 were 23,871,227 barrels of wheat flour, 132,671 barrels of rye flour, 66,018 barrels of corn meal, 198,217 tons of feed, and 933,525 tons of offal. About 90 per cent. of the value of lumber products was credited to white pine and most of the remainder to Norway pine. The dairy products included 58,542,838 pounds of butter, valued at \$11,549,800. Other important industries in 1905 were: Planing mill products, railway repair-shop work, manufacture of linseed oil, foundries and machine shops, malt liquors, and boots and shoes. Values were credited to leading cities as follows: Minneapolis, \$121,593,000; St. Paul, \$38,318,700; Duluth, \$10,139,000; and Winona, \$7,850,000.

EDUCATION. The report of the State Superintendent showed a total enrollment in 1908 of 430,748 out of a total population of approximately 600,000 (ages 5 to 18). The average daily attendance in 1908 was 334,600. There were 206 State-aided high schools, with 992 instructors, and a total enrolment of 24,530. There were 152 graded, 340 semi-graded, 1,305 first-class rural, and 632 second-class rural schools, with a total enrollment of about 252,000, of whom 26,500 were in graded schools. The State high schools received \$1,400 each, graded schools \$525 each, and for other classes \$230, \$105, and \$40 each, respectively. Teachers in common school districts in 1908 numbered 9,169, of whom 85 per cent. were women. The average monthly salary of men teachers was \$53.30 and of women \$40.82. Teachers in independent and special districts numbered 542 men and 4,719 women, with average monthly salaries of \$108.87 and \$52.93, respectively. The total number of teachers in 1908 was 14,430. The average length of term in common school districts in 1908 was 7 months, and of independent and special districts, 9 months. The total enrollment in the five State normal schools in 1908 was 4,114. The total expenditures for public schools were \$11,495,615. The permanent school fund was \$19,709,383, and the permanent university fund, \$1,413,817.

FINANCE. The report of the State treasurer for the fiscal year ending July 31, 1907, showed a balance in the treasury, Aug. 1, 1906, of \$1,810,904. The receipts for the fiscal year 1907 were \$11,250,342 and the disbursements were \$10,660,813, leaving a balance in the treasury, July 31, 1907, of \$2,400,432. Of the receipts, \$1,293,939 were from the permanent school fund, \$1,539,481 from the general school fund, \$7,062,755 from the revenue fund. From the general university fund was received \$471,867. The permanent school funds of the State amounted to \$12,924,855 and the permanent university fund to \$1,177,714. The State debt on July 1, 1907, amounted to \$1,109,000.

CHARITIES AND CORRECTIONS. The State Sanatorium for Consumptives, authorized in 1903, was opened in Dec., 1907, with two patients. On July 31, 1908, there were 55,—23 males, 30

females. A law of 1905 provided that district courts in counties having a population of at least 50,000 should have original and exclusive jurisdiction in special juvenile courts. These courts were given charge of neglected, dependent, or delinquent children under seventeen years of age, were authorized to appoint probation officers for delinquent children, and were given wide discretion in disposing of all children included under the act in homes or private or public institutions. New institutions provided for in 1907 were detention hospitals at the various asylums for the insane, a hospital for dangerous or criminal insane at St. Peter, an Industrial School for Girls at Sauk Center, (no buildings erected yet), a hospital farm for inebriates, and a hospital for crippled and deformed children at St. Paul. A law of 1907 also provides for the appointment of State agents for the care of the insane after their discharge from hospitals. A statement of the Board of Control gave the number of inmates of the hospitals for the insane on July 31, 1908, as follows: Anoka, 416; Hastings, 424; Fergus Falls, 1,578; Rochester, 1,161; St. Peter, 981; total, 4,560, of whom 2,608 were males and 1,952 females; the total current expense was \$717,771.03. The population of other institutions on the same date was: School for the Blind, Faribault, 93; School for Feeble-Minded, Faribault, 1,113; School for Deaf, Faribault, 275; State Public School, at Owatonna, 202; State Training School, Red Wing, 397; State Reformatory, St. Cloud, 318; State Prison, Stillwater, 665. The total current expense of all institutions, including insane asylums, was \$1,347,089.39, excluding the Sanatorium, which is partially supported by patients.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in Minnesota in 1908. On Jan. 8, Judge Sanborn, of the United States Circuit Court, at St. Paul, appointed A. B. Stickney and Charles H. F. Smith receivers for the Chicago Great Western Railroad. Mr. Stickney was president of the road. This action followed the inability of the company to meet obligations falling due in 1908, which creditors refused to extend. The loss through the boiler makers' strike in the fall of 1907 was given as a partial cause of the financial troubles of the road. The Great Western owns in fee, without mortgage, lines of railroads in Illinois, Iowa, Minnesota, Kansas, and Missouri. On Mar. 23d, the United States Supreme Court handed down a decision declaring the Minnesota railroad law passed in 1907, unconstitutional. (See RAILWAYS.) By a decision, unanimous except for Justice Harlan, the court held that where such laws affected the rights of the railroads or their stockholders guaranteed by the Constitution of the United States, the subordinate Federal courts had authority not only to hear the claims raised, but also to stay the execution of such laws, notwithstanding the prohibition contained in the Eleventh Amendment against the institution of suits against a State. In the Minnesota case, the controversy arose from the enactment, first, of the two-cent rate law and the excessive penalties that were provided against the railroads or their officers who refused to comply with its terms, \$5,000 fine and five years' imprisonment for each refusal to sell a ticket at the rate named. For a fuller discussion of this decision, see the article RAILWAYS. On April 3, Chief Justice Clabaugh, of

the Supreme Court of the District of Columbia, decided a case in favor of the Secretary of the Interior, the effect of which will be to turn over to the State of Minnesota several hundred thousand acres of land. The decision was in the case of Gus A. Beaulieu, who, acting on behalf of the Chippewa tribe of Indians, sought to restrain the Secretary of the Interior from turning over the lands in question to the State. The Indians claimed that the lands should be sold and the proceeds divided among them, but the Secretary of the Interior decided that the lands should be allotted to the State under an act of Congress giving to it lands that were swampy in character. These lands are in the ceded Chippewa Indian Reservation in Minnesota.

CONVENTIONS AND ELECTIONS. On Mar. 11, town and village elections were held throughout the State. In many places the question of liquor prohibition was submitted to the voters. The Prohibitionists were victorious in 18 towns and villages, and the advocates of license in 20. On May 17, Democratic primaries were held throughout the State to choose delegates to the State Democratic Convention on May 14, when delegates to the National Convention were to be selected. The result showed an overwhelming sentiment in favor of Governor John A. Johnson for presidential candidate. His supporters carried every district in the State and all but two counties. The convention, which met on May 14, selected delegates-at-large and also delegates from the nine districts. Resolutions were passed unanimously instructing the delegates to vote for Governor Johnson for President as long as he should be a candidate. The resolution also declared for the support of the nominee, whether he were Johnson or some other candidate. The Republican Convention for the nomination of delegates to the National Convention met at Minneapolis on April 16. The delegates-at-large chosen were instructed to vote for William H. Taft. Resolutions were adopted praising the administration of President Roosevelt, and "especially his effort for the establishment of a sound financial system, the enforcement of the laws, and proper regulation of corporations, for free competition in business, for the protection of property rights, for the stability of government and for the maintenance of the highest standard of business integrity and civic duty." The Republican State Convention to nominate candidates for Governor and other officers was held at St. Paul on June 31. J. P. Jacobson was nominated Governor. On Aug. 19, the Democratic Convention for the nomination of a candidate for Governor met at St. Paul. In spite of his declaration previous to the convention that it would be impossible for him to be a candidate for the third time, Governor John A. Johnson was unanimously renominated, and Governor Johnson accepted the nomination. The results of the election of Nov. 3 were a notable example of the effects of independent voting, for while Taft received a plurality over Bryan of over 85,000 votes (Taft, 155,416; Bryan, 109,504; Chafin, 8658; Debs, 10,021), Governor John A. Johnson, the Democratic candidate, was reelected by a majority of 20,000 votes (173,845-153,667). The cities of St. Paul, Minneapolis, and Duluth gave Johnson a plurality of about 20,000 over his Republican opponent.

OTHER EVENTS. Forest fires did considerable damage in the State in September and October, especially in St. Louis, Carlton, and Itasca

counties, although the damage done was not great as compared with that in the neighboring States of Michigan and Wisconsin. On June 22, a wind storm broke over Minneapolis and St. Paul and caused damage to property estimated at \$1,000,000.

STATE OFFICERS. Governor, John A. Johnson, Dem.; Lieutenant-Governor, A. O. Eberhart, Rep.; Secretary of State, Julius A. Schmahl, Rep.; Auditor, S. G. Iverson, Rep.; Treasurer, C. C. Dinehart, Rep.; Attorney-General, Geo. T. Simpson, Rep.; Adjutant-General, Fred. B. Wood, Dem.; Superintendent of Education, J. W. Olson, Rep.; Commissioner of Insurance, J. M. Hartigan, Dem.

JUDICIARY. Supreme Court: Chief Justice, Charles M. Start, Rep.; Associate Justices, Calvin L. Brown, Rep.; Edward A. Jaggard, Rep.; Charles L. Lewis, Rep.; Charles B. Elliott, Rep.; Clerk, C. A. Pidgeon, Rep.

The State Legislature of 1909 is composed of 43 Republicans and 20 Democrats in the Senate; 94 Republicans, 22 Democrats, and 3 Prohibitionists in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

MINNESOTA, UNIVERSITY OF. An institution of higher learning at Minneapolis, founded in 1851. In 1907-8 the attendance was 4,421, and in the autumn of 1908, 4,687. The distribution is as follows: College of science, literature and the arts, 1,484; engineering, 473; agriculture, 931; law, 500; medicine, 173; dentistry, 176; pharmacy, 99; mines, 148; chemistry, 58; education, 32; graduate school, 107; summer school, 1,040. A large majority of the students are from the State and one-third of all are women. In 1907, about thirty acres were added to the campus by act of the Legislature, and provision has been made for the new buildings by the college of engineering, medicine, dentistry, and pharmacy. The entire income of the University is \$692,000, of which \$116,000 is from the United States government. The President in 1908 was Cyrus Northrop. He announced his resignation to take effect in 1909. A successor had not been chosen at the end of the year.

MINOR PLANETS. See *ASTRONOMY*.

MISSIONARY ASSOCIATION, AMERICAN. A society under the auspices of the Congregational denomination, organized in 1846 to carry on educational and missionary work, a feature of the latter being industrial training among the eight different peoples comprised in the population of the United States. The association has its largest field in the South, where there are missions and schools for negroes and mountaineers. Work is carried on also in Alaska, Hawaii and Porto Rico, and among Indians, Chinese, and Japanese. The association has 823 missionaries, and under its auspices are 101 schools with 17,690 pupils, and 238 churches, having 14,196 members. Institutions covering instruction from kindergarten and primary work to professional training to the number of 63 are maintained for the negroes of the South. The receipts for current work for the year ending Sept. 30, 1908, were \$387,728.81, and the expenditures were \$379,695.55. The amount paid on the debt was \$8,033.26, which reduced the debt balance to \$46,917.92. The donations from churches and individuals were \$183,213.10, a decrease of \$21,326.21 over the previous year. Donations from estates were \$115,975.91, a decrease

of \$9,422.99 over the donations of 1907. The official organ of the association is *The American Missionary*, issued in ten monthly numbers each year. The honorary secretary and editor is Rev. A. F. Beard, D.D.; corresponding secretaries, Rev. James W. Cooper, D.D., and Rev. Charles W. Ryder, D.D.; treasurer, H. W. Hubbard, 287 Fourth Avenue, New York City.

MISSIONS, PROTESTANT FOREIGN. The following statistics relating to foreign missions are taken from the *Almanac of Missions* issued by the American Board of Commissioners for Foreign Missions. The leading missionary societies in the evangelical churches of the United States in 1907-8 were as follows (the communicants, number of missionaries, and the total income are given, together with the number of stations maintained): American Board of Commissioners for Foreign Missions (Congregational): Communicants, 71,137; missionaries, 208 men, 386 women; principal stations, 107; income, \$837,999. Presbyterian Board of Foreign Missions, U. S. A., North: Communicants, 85,487; missionaries, 398 men, 550 women; principal stations, 148; income, \$1,347,295. Presbyterian Board, U. S. A., South: Communicants, 9,064; missionaries, 105 men, 111 women; principal stations, 49; income, \$323,878. United Presbyterian Church, North America: Communicants, 24,097; missionaries, 58 men, 116 women; principal stations, 24; income, \$306,197. Reformed Church in America: Communicants, 5,282; missionaries, 42 men, 69 women; principal stations, 23; income, \$197,468. Reformed Church in the United States: Communicants, 2,650; missionaries, 22 men, 30 women; principal stations, 5; income, \$96,100. Evangelical Lutheran General Synod, U. S. A.: Communicants, 13,063; missionaries, 15 men, 24 women; principal stations, 9; income, \$74,531. American Baptist Missionary Union: Communicants, 143,873; missionaries, 250 men, 365 women; principal stations, 117; income, \$934,434. Methodist Episcopal Church: Communicants (including probationers), 235,018; missionaries, 343 men, 638 women; principal stations, 170; income, \$2,050,237. Protestant Episcopal Church: Communicants, 11,170; missionaries, 119 men, 128 women; principal stations, 87; income, \$728,202. Foreign Christian Missionary Society: Communicants, 10,435; missionaries, 84 men, 86 women; principal stations, 48; income, \$223,689. The total number of communicants represented by the foreign missions of all the evangelical churches in the United States was in 1907-8 672,103. There were 1,105 principal stations maintained, with 10,410 out-stations. The total number of men missionaries was 2,063, and women, 3,054. There were 27,319 native laborers and 5,745 churches. Under instruction were 344,533. The total income was \$9,147,364, and the native contributions amounted to \$1,564,981.

Following are notes on mission work in some of the more important fields: In India there are now said to be 91 missionary organizations of America and Europe engaged in missionary work, with a total missionary force of about 4,000. The native force far outnumbers the foreign, consisting of 26,000 men and women, of whom 1,100 are ordained. During the year the church union in southern India between various missionary organizations, Presbyterian, London Missionary Society, and the American Board of Commissioners for Foreign Missions, has resulted in great good. In China are nearly 4,000

missionaries, including physicians connected with the Protestant foreign missions. There are 5,102 stations and out-stations. The total number of communicants reported at the Shanghai Conference in 1907 was 154,000. The latest statistics in regard to Protestant mission work in Japan give the total number of foreign missionaries, including wives, as 886; the number of organized churches, 453; number of preaching places, other than churches, 751; number

of Japanese ordained ministers and helpers, 698; number of communicants, 54,352. For additional notes on Missions see the articles on the different Protestant denominations. The following table, taken from the *Almanac of Missions*, published by the American Board of Commissioners for Foreign Missions, gives the number of missionaries from different portions of the globe, the number of native laborers, the number of communicants, and other information:

Countries	Stations and Out-stations	Missionaries		Native Laborers	Communicants	Added Last Year	Under Instruction	Income
		Men	Women					
United States	11,515	2,063	3,054	27,319	672,103	80,994	344,533	\$9,165,603
Canada	420	163	198	638	16,055	912	6,654	544,158
Great Britain & Ireland	13,809	3,064	3,377	36,654	550,016	29,651	597,001	8,293,599
Continental Europe	7,039	1,523	1,450	13,558	134,129	20,895	235,922	2,745,430
Totals	32,783	6,813	8,079	78,169	1,372,303	132,452	1,184,110	\$20,748,790

MISSISSIPPI. One of the South Central Division of the United States. Its total area is 46,665 square miles. The population, according to a Federal estimate made in 1908, was 1,780,606.

MINERAL PRODUCTION. The mineral products of the State are relatively unimportant. They include clay products, which were produced in 1907 to the value of \$846,529, as against a value of the same product in 1906 of \$851,080. The State produced in 1907 425,500 gallons of mineral water, a marked increase over the production of 1906, which was 254,279 gallons. The value of the production of 1907 was \$93,350, as compared with a value in 1906 of \$52,820. Other mineral products are coal products, sand and gravel, and sand-lime brick. According to the figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$1,024,302, as compared with a value in 1906 of \$954,559.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 45,845,000 bushels, valued at \$38,051,000 from 2,650,000 acres; winter wheat, 14,000 bushels, valued at \$14,000 from 1,000 acres; oats, 2,188,000 bushels, valued at \$1,466,051,000 from 2,650,000 acres; winter wheat, valued at \$28,303 from 1,100 acres; potatoes, 728,000 bushels, valued at \$677,000 from 8,000 acres; hay, 122,000 tons, valued at \$1,342,000 from 81,000 acres; tobacco, 25,000 pounds, valued at \$6250 from 100 acres. In the production of cotton Mississippi ranked third in 1908, being surpassed by Texas and Georgia. The estimated crop for 1908-9 was 1,560,000 bales, which was about the same as the crop of 1907-8. The number of farm animals has remained practically constant since 1900. The estimated value of the wool clip in 1908 was \$139,200.

MANUFACTURES. Manufacturing is still unimportant, though rapid progress was made between the censuses of 1900 and 1905. The latter reported 1,520 factories, with \$50,256,000 capital,

38,690 wage-earners, and products valued at \$57,451,000, these four items exceeding the corresponding ones of 1900 by 17.5, 121.3, 44.4, and 70.4 per cent., respectively. Of the wage-earners 2,054 were women, and 1,272 were children under 16. The leading industries in 1905 were lumbering, with products valued at \$24,035,500, and the manufacture of cottonseed products, with products valued at \$12,587,000. These values were respectively 57.2 and 88.4 per cent. greater than the corresponding values in 1900. Yellow pine represented 70 per cent., oak 12 per cent., cotton-wood 4.8 per cent., cypress 4.7 per cent., gum 3.3 per cent., and poplar 1.4 per cent. of the timber value. The cottonseed products included 22,329,400 gallons of oil and 224,953 tons of meal and cake. Other industries in 1905 were railway shops, turpentine and resin, cotton goods, planing mill products, and canning oysters. Meridian was credited with products valued at \$3,267,600, Vicksburg with \$1,887,924, and Natchez with \$819,729.

EDUCATION. The last report of the State Superintendent of Education is for the biennium 1906-7. Although progress made in educational development during the school year 1906-7 was not so great as could have been desired, considerable progress was made in arousing public school sentiment and in raising school funds by local assessment. There was still lacking a State normal school for white teachers, provision for industrial and manual training in public schools, and adequate rural school superintendents. The number of white schools taught in 1907, exclusive of separate districts, was 4,068, and of colored, 2,951. The number of white pupils enrolled was 174,782, and of colored, 248,095. The numbers in average daily attendance were: white, 110,623, and colored, 137,536. The total number of white teachers employed was 5,068, colored 2,308. The average monthly salary of white teachers was \$39.50, and of colored teachers \$20.52. In the foregoing statistics there are not included the returns from 117 separate districts for towns and cities, maintaining schools for at least seven months. The

enrollment in these districts in 1907 was 36,767 and 22,564.

CHARITIES AND CORRECTIONS. The appropriations for the various State institutions for 1908-9 were as follows: State Charity Hospital at Vicksburg, \$25,000; the Confederate Hospital Annex, Vicksburg, \$2,500; the Natchez Hospital, \$20,000; for the support of the insane, \$162,500; for the East Mississippi Insane Asylum, \$77,000. Other appropriations were made for the Deaf and Dumb Institute and for the Institution for the Blind.

POLITICS AND GOVERNMENT. On Jan. 21, Edmond F. Noel was inaugurated Governor of the State. On the same date the Legislature elected John Sharp Williams to the United States Senate to succeed Senator H. D. Money. Mr. Williams defeated James K. Vardaman in the Democratic primary elections held to choose nominees for the Senate in 1907. He does not take his seat in the Senate until 1911. The most notable happening in the political history of the State in 1908 was the passage of the statutory prohibition bill in February. This bill becomes operative on Jan. 1, 1909. About 90 per cent. of the territory of the State was already under local option. Another significant law was that which prohibits counties or cities hiring out prisoners. Public farms must be secured for them to be worked on, by the county authority, or they must be worked on the public roads. An attempt made in the Legislature to pass a measure providing for constitutional prohibition was defeated in the Senate on March 11 by a close vote. The bill had the support of Gov. Noel, but in spite of this it was unable to pass. On Jan. 6, Judge Wood of the Chancery Court at Gulfport declared unconstitutional an act of the Legislature which penalized railroads that remove litigation from the State to the Federal courts. The case was that of the State of Mississippi against the Louisville and Nashville Railroad. The State sought to oust the railroad from the State because the road had transferred litigation, started in the State courts, to the Federal courts.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the election of delegates to the National Convention met at Jackson April 29th. There was a split between the delegates favoring instructions for Senator J. B. Foraker and those wishing an uninstructed delegation. The Foraker adherents held a separate meeting and selected delegates instructed to vote for Senator Foraker for President. The regular convention chose a full set of delegates and gave no instructions. It was understood, however, that the unanimous sentiment of the delegation was in favor of William H. Taft for President. The Democratic State Convention for the election of delegates to the National Convention met at Jackson June 17. Resolutions were adopted endorsing and instructing for W. J. Bryan for President, and condemning the Republicans for extravagance in the last session of Congress. Mississippi is the most Democratic in sentiment of any of the States, and the casting of ballots is hardly more than a matter of form. The majority of the votes cast for the Democratic candidate in the election of November 3 was, however, smaller than ever before. The figures were as follows: Bryan, 60,876; Taft, 4,505; Watson, 1,057; Debs, 1,048.

OTHER EVENTS. Much damage was caused in the State during the year by tornadoes and wind

storms. On Jan. 31, a wind storm killed 5 persons, wrecked many houses, and injured much property at Wesson. The lumber industries, of which there are many in the vicinity, were greatly damaged. On Feb. 14, a tornado passed over Jones County and other sections of the State. The Capitol at Jackson, in which the Legislature was in session, was slightly damaged. The storm was followed by heavy floods. On April 24, three tornadoes of great severity passed over the different sections of the State. One crossed the northwest corner; another crossed the Mississippi River near Natchez, causing great destruction of property in that city, and the third and worst took a northwest course through Purvis and other small towns and inflicted great losses at Purvis and immediate vicinity; 55 were killed, 200 wounded, and 2,000 made homeless. Congress made available \$250,000 for the purpose of furnishing aid to those who suffered from the disaster in Mississippi and other States. The State suffered during the year, in common with most of the other Southern States, from the terrorism of the "night riders." In September, bodies of these men undertook to stop the ginning of cotton in the southern part of the State. Notices were sent to the owners of gins to stop work under penalty of having their gins burned. The movement, which did not materialize, was restricted to a few counties. On March 14, eight persons were killed and property valued at many thousands of dollars was wrecked at Natchez, as the result of an explosion of gas in a five-story building, occupied by the Natchez Drug Company. The spread of the boll weevil in the southwestern part of the State induced a heavy migration of the negro population.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: A child labor law was enacted. (See CHILD LABOR.) A measure was enacted providing that any public service corporation which shall remove a suit from a State to a Federal court shall forfeit its right to carry on interstate commerce in the State. The hiring of county prisoners to an individual or corporation for any purpose was abolished. (See above.) A measure was enacted providing that any public service corporation blacklisting or refusing employment to telegraph operators only because of their affiliation with a labor organization shall be liable to actual and exemplary damages. For account of the legislation against the liquor traffic, see above, also the article PROHIBITION. A live stock sanitary board was created for the purpose of dealing with infectious diseases of animals. Several important amendments were made to the laws relating to railroads, and amendments were also made to the laws governing elections. Provision was made for the general enforcement of the anti-trust laws. A commission form of government for cities and towns was provided for, and permission was given for the adoption of such form by an election.

STATE OFFICERS. Governor, E. F. Noel; Lieutenant-Governor, Luther Manship; Secretary of State, J. W. Power; Treasurer, Geo. R. Edwards; Auditor, E. J. Smith; Superintendent of Education, P. C. Powers; Attorney-General, R. V. Fletcher; Adjutant-General, Arthur Fridge; Land Commissioner, E. W. Nall—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, A. H. Whitfield; Associate Justices, Jeff. Truly, and S. S. Calhoon; Clerk of the Court, George C. Meyers—all Democrats.

The State Legislature of 1909 is wholly Democratic. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

MISSOURI. One of the Central States of the United States. Its area is 69,430 square miles. The population in 1908, according to a Federal estimate, was 3,448,649.

MINERAL PRODUCTION. From the report of the State Bureau of Mines and Mine Inspection, the following figures for mineral production in 1907 are taken: (For these figures the product and value of the raw material is taken, and the value of spelter or refined zinc or zinc oxides is not included. Lead is covered by the ore itself, and not the value of the pig lead, or the other productions manufactured from the ore.) The zinc production of 1907 was 225,396½ tons, valued at \$9,056,965. The production in 1906 was 223,588 tons, valued at \$9,115,006. Lead production in 1907 showed a loss as compared with 1906, with a product of 151,291½ tons, valued at \$9,823,823, as against 160,232 tons, valued at \$10,697,582, in 1906. The financial troubles of the country cut prices for both lead and zinc ores during 1907, which seriously affected values. There was a considerable increase in the tonnage, price per ton, and total value of coal in 1907 as compared with 1906. In 1907 there were mined 4,355,494 tons, valued at \$7,306,125, as compared with 3,889,655 tons in 1906, valued at \$6,352,913. Coal was apparently less affected by the depressed trade and prices than any other mineral mined in the State. The iron production in 1907 was 107,363 tons, valued at \$329,073, as against 158,332 in 1907, valued at \$329,073, in 1906. Barytes showed an increase in both tonnage and value over 1906. There were produced in 1907, 60,370½ tons, valued at \$292,540. The production of tripoli showed a slight increase over 1906, with a value of \$48,144. The production of copper for 1907 was the largest in quantity and value yet mined in the history of the State. The value of the product was \$70,187. Copper, nickel, and cobalt by-products of some of the lead mines were mined largely in 1907 and gave promise of largely increased values during 1908. These ores are found in greater quantity than ever before in southeastern Missouri. With a new and successful plant at Fredericktown for the separation of these sulphide ores, decided advantages in the value of copper, cobalt, and nickel from the State may be expected. The minerals above named show a value for the year 1907 of \$26,823,422. To this may be added the clays, which, in 1907, were valued by the United States Geological Survey at \$6,862,000, and in addition, marble, granite, building-stone, cement, and lime-rock, whose value brings the total of all underground mining for 1907 to \$34,685,482, as against a total value in 1906 of \$55,496,317, and \$23,043,768 in 1905. The values of the gravel, glass-sand, mineral waters, natural gas, petroleum, sulphur, and several other minerals are not included in the values for 1907. According to figures by the United States Geological Survey, the value of the total mineral production of the State in 1907 was \$53,129,431, as compared with a value in 1906 of \$55,496,317. It is estimated that the production of coal in the State in 1908 decreased about 15 per cent. from the production in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm

crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 203,634,000 bushels, valued at \$116,071,000, from 7,542,000 acres; winter wheat, 22,260,000, valued at \$20,702,000, from 2,226,000 acres; oats, 13,510,000 bushels, valued at \$6,080,000, from 700,000 acres; barley, 46,000 bushels, valued at \$29,000, from 2,000 acres; rye, 192,000 bushels, valued at \$146,000, from 15,000 acres; buckwheat, 20,000 bushels, valued at \$17,000, from 1,000 acres; flaxseed, 182,000 bushels, valued at \$187,000, from 26,000 acres; potatoes, 6,800,000 bushels, valued at \$5,032,000, from 85,000 acres; hay, 4,350,000 tons, valued at \$30,450,000, from 2,900,000 acres; tobacco, 2,187,500 pounds, valued at \$273,438, from 2,500 acres. The cotton crop in 1908-9 was estimated at 54,000 bales. In the production of corn, Missouri is surpassed only by Illinois, Iowa, and Nebraska. The corn crop showed a considerable decrease in 1908 from the crop of 1907, which was 241,025,000 bushels. There was also a decrease in the production of wheat, of which 29,212,000 bushels were produced in 1907. The oat crop decreased in 1908 from 14,254,000 bushels in 1907. The production of potatoes also showed a marked decrease, the crop in 1907 having been 7,134,000 bushels. The hay crop showed a slight increase, 4,060,000 tons having been produced in 1907. The numbers of farm animals in 1909 were as follows: Horses, 995,000; mules, 337,000; dairy cows, 984,000; other cattle, 2,232,000; sheep, 997,000; swine, 3,270,000. The State ranks second in the number of mules, fourth in the number of swine and fifth in the number of neat cattle. The wool clipped in 1908 was 5,712,071 pounds, valued at \$1,306,922.

MANUFACTURES. Comparison of the census of 1905 with that of 1900 shows a gain of 69.5 per cent. in capital, 23.6 per cent. in the number of wage-earners, and 39 per cent. in the value of products. These three items in 1905 were, respectively, \$379,368,800, \$133,167, and \$439,548,900. Of the wage-earners 22,769 were women and 4,471 were children under 16. The values credited to leading industries, and, in parentheses, the per cent. of increase over 1900 were: Slaughtering and meat packing, \$60,031,100 (39.5); flour and grist mill products, \$38,026,142 (59.6); chewing and smoking tobacco and snuff, \$27,836,422 (10.9); malt liquors, \$24,154,264 (75.3); boots and shoes, \$23,493,552 (108.8); printing and publishing, \$23,015,515 (49.9); foundry and machine shop products, \$16,849,974 (11.8); lumber and timber products, \$10,903,783 (3.6); men's clothing, \$8,872,800 (no change); railway repair shops, \$8,720,400 (32); roasting and grinding coffee and spices, \$7,263,700 (40); carriages and wagons, \$6,551,100 (20); and paints, \$6,144,500 (42.3). Missouri ranked fourth in slaughtering and meat packing, seventh in flour milling, first in the manufacture of chewing and smoking tobacco, third in malt liquors, and fourth in boots and shoes. Of the total value of products St. Louis produced \$267,307,000; Kansas City, \$35,573,000; St. Joseph, \$11,573,700; Springfield, \$5,293,300; Hannibal, \$4,442,000; Jefferson City, \$3,926,600; and Joplin, \$3,006,000.

EDUCATION. Legislation in 1901 and 1907 providing for a State Library Commission greatly facilitated the establishment of school libraries in the State. In 1907 there were 6,657 such libraries, having a total of 637,530 volumes, of

which 418,655 were in rural schools. Laws of 1903 and 1907 provided for State inspectors of high schools and rural schools. Rural school inspection, under provisions of this law, has greatly stimulated the elementary schools. Probably 6,000 pupils were graduated from these schools and received high school entrance certificates. Perhaps one-half of this number were attending high schools in 1908. Four counties adopted county supervision at the election held in 1908. Twenty-four counties now have such supervision. The total school population for the school year ending June 30, 1908, was 934,659. The total enrollment for the term 1907-8 was 708,949 white and 32,796 colored. The number of white teachers was 12,282 women and 4,825 men, and of colored 504 women and 232 men. The average length of term in all schools was 145 days. The total expenditure for public schools in 1907 was \$11,712,751. The money apportioned in 1908 was \$1,564,557.67. The various permanent school funds aggregated \$13,754,150 on July 1, 1907.

FINANCE. The report of the Auditor for the year ending Dec. 31, 1907, showed a balance in the treasury on Jan. 1, 1907, of \$2,308,286. The receipts for 1907 were \$5,949,193, and the disbursements were \$7,310,329, leaving a balance in the treasury on Jan. 1, 1908, of \$947,149. The chief receipts were from the State revenue funds, from the State seminary money, from the earnings of the Missouri Penitentiary, and from the county foreign insurance tax fund. The State debt on Jan. 1, 1908, amounted to \$4,398,839. The assessed valuation of the State for 1908 was as follows: Real estate, \$1,040,252,288; personal property, \$312,036,054; merchants and manufacturers, estimated, \$106,000,000; railroad, bridge, telegraph, and telephone, \$163,482,879, or a total of \$1,621,771,213.

CHARITIES AND CORRECTIONS. The principal charitable and correctional institutions of the State, with their population in 1908, were as follows: School for the Blind, St. Louis, 108; School for the Deaf, Fulton, 327; Tuberculosis Sanitarium, Mount Vernon, 95; Confederate Home, Higginsville, 300; Federal Home, St. James, 259; Insane Hospital, Fulton, 1,117; Insane Hospital, St. Joseph, 1,407; Insane Hospital, Nevada, 1,246; Insane Hospital, Farmington, 574; City of St. Louis Insane Hospital, 628; Feeble Mind Colony, Marshall, 416; Girls' Industrial School, Chillicothe, 263; Boys' Training School, Booneville, 522; State Penitentiary, Jefferson City, 2,125. In 1908 the Board of Charities and Corrections visited the poorhouses of the State with a view to improving conditions therein. As a result, in many counties new and modern buildings have been erected. The charitable and penal institutions of the State were, in 1908, in excellent condition.

POLITICS AND GOVERNMENT. There was no session of the State Legislature in Missouri in 1908. A number of important judicial decisions affecting recent legislation in the State were made during the year. On Jan. 20, the law forbidding transfer of suits from State to Federal courts, passed by the Legislature of 1907, was declared to be unconstitutional. On Jan. 27, a decision was handed down by the Supreme Court declaring unconstitutional the law requiring free transportation for shippers of live stock. On Feb. 29, the State officials were enjoined from enforcing the law against high insurance salaries, passed in 1907. The local option law of the State was upheld as constitutional by a de-

cision rendered on March 17. The constitutionality of the primary law was attacked, and on April 14 the courts handed down the opinion that the law was constitutional. The Supreme Court on June 6 held the eight-hour train dispatchers' law, passed in 1907, invalid. The railroads of the State won a notable victory on March 31, when Judge Smith McPherson, in the Federal Court, decided that he had full jurisdiction over both the maximum freight rate and the two-cent passenger fare cases. Attorney-General Hadley had fought for an amendment denying the right of the Federal Court to enjoin him or interfere with the enforcement of the criminal statute. The railroads agreed to give the two-cent law a test for three months, and asked Judge McPherson to give them that much time to indicate how much the law would affect their revenues. This decision of the court in effect holds that in enjoining the State officers the court is not enjoining the State itself; that the court has a perfect right to go into the question of whether the rates fixed by the statutes are remunerative. On Oct. 3, a grand jury, which had been investigating alleged primary and legislative frauds in St. Louis, returned an official report bringing indictments against 97 persons, of whom 69 were judges or election clerks. At a special election held on June 2, the proposition to substitute the commission form of city government was defeated in Kansas City by about 1,009 votes.

By a unanimous decision handed down by the Supreme Court on Dec. 23, the Standard Oil Company of Indiana and the Republic Oil Company of New York were forbidden ever to do business in the State of Missouri again, and the Pierce-Waters Oil Company, a Missouri corporation, was ordered to dissolve under a condition which will permit the company to be reorganized. Each of the three companies is fined \$50,000. The court found that the companies conspired, first, to regulate and fix prices to retail oil; second, to control and limit the trade in the refined products of petroleum; third, to control and limit and to prevent competition in the buying and selling of these products; fourth, to deceive and mislead the public into the belief that they were separate and distinct corporations, pursuing independently their business as legitimate competitors. The decision is the result of a suit brought by Attorney-General Hadley, later Governor-elect, nearly three years ago. The Attorney-General in his suit alleged that the Standard Oil Company controlled the other two companies, and that they were operating in violation of the anti-trust laws of the State. The decision against the Waters-Pierce Company gave that concern until March 1, 1909, to cut loose from the Standard Oil Company and operate independently.

The Legislature of Missouri in 1907 passed a law, known as the Civic League Act, requiring that all leagues, societies, or committees having as their purpose the investigation of the character and qualifications of candidates or nominees for public office should state in full on what facts they based their reports and give names and addresses of all persons furnishing the information. The law was aimed primarily at the Kansas City Civic League, but also generally against all such organizations as sought to lay before the voters in a non-partisan and dispassionate spirit the facts concerning candidates. A test case was brought by the Secretary and President of Kansas City Civic

League. They contended that the law violated that part of the Missouri Constitution which provides that "no law shall be passed impairing the freedom of speech, and every person shall be free to say, write or publish whatever he will on any subject, being responsible for all abuse of that liberty." This contention was upheld by the Missouri Supreme Court. The Supreme Court declared that this Act "is not confined to forbidding and punishing of the liberty of speech or publication, but undertakes to punish speech or publication without any reference to whether they fall within the legal acceptance of blasphemy, obscenity, sedition or defamation."

CONVENTIONS AND ELECTIONS. At the State elections held on April 7, the Democratic ticket was elected in Kansas City. The issue in the State campaign was the Public Utilities Commission, authorized by the last Legislature and created for the regulation of public service corporations. The local option election in Monroe county on April 7 resulted in a victory for license by 44 majority. This leaves 66 of the 114 counties in the State "dry." On Feb. 13, Livingston county voted in favor of local option by a majority of four to one. The Republican State Convention for the selection of delegates to the National Convention was held at St. Louis on Feb. 27. The delegates chosen were instructed to vote for William H. Taft for President. Herbert S. Hadley was endorsed as candidate for Governor of the State. The Democratic State Convention to choose delegates to the National Convention met at Jefferson City on May 20. Resolutions were unanimously adopted instructing the delegates chosen to support William J. Bryan for President as a unit. Primary elections were held in the State for the first time under the new law on Aug. 4. The Republicans named for Governor the Attorney-General of the State, Herbert S. Hadley, who had won wide reputation from his prosecution of the Standard Oil Company and other corporations. The Democrats, who were forbidden by the State Constitution to nominate Governor Joseph W. Folk for the second time, chose as their nominee William S. Cowherd of Kansas City. On Feb. 23, Governor Folk announced his candidacy as successor to Senator William J. Stone, whose term in the Senate expired in 1909. The campaign for this nomination was very spirited. The result of the election on Nov. 3, which was to decide the Senatorship, was so close that while the first returns indicated that the Democrats had carried the State, a later count gave the Republicans a plurality of about 1000. In the Senatorial primary, Senator Stone defeated Governor Folk by a safe plurality. The carrying of the State by the Republicans was one of the surprises of the campaign, as it is normally reckoned among the Democratic States. The plurality of Mr. Hadley for Governor was over 15,000. The detailed vote of the State and national ticket was as follows: Taft 347,203; Bryan, 346,574; Chafin, 4198; Debs, 15,391; Hadley, 355,932; Cowherd, 340,053.

OTHER EVENTS. The National Bank of Commerce of Kansas City, which was obliged to suspend in 1907, reopened for business on Mar. 30.

STATE OFFICERS: Governor, Herbert S. Hadley; Lieutenant-Governor, in doubt; Secretary

of State, Cornelius Roach; Auditor, John P. Gordon; Treasurer, James Cowgill; Attorney-General, H. S. Hadley; Superintendent Public Schools, H. A. Gass; Adjutant-General, James A. DeArmond; Commissioner of Insurance, W. D. Vandiver—all Democrats except Hadley.

JUDICIARY. Supreme Court: Chief Justice, James B. Gantt; Associate Justices: Division 1, Henry Lamm, Walter W. Graves, Leroy B. Valliant; Division 2, A. M. Woodson, Govon D. Burgess, James D. Fox, John R. Green—all Democrats except Lamm.

The State Legislature of 1909 is composed of 23 Democrats, and 11 Republicans in the Senate, 69 Democrats and 73 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under the section Congress.

MISSOURI, UNIVERSITY OF. An institution of higher learning at Columbia and Rolla, founded in 1839. In 1907-8 the attendance was 2,536, and in the autumn of 1908 it was 2,558, distributed as follows: arts, 910; applied science, 667; summer session, 508; education, 315; law, 260; agriculture, 222; graduate students, 137; medicine, 35; and journalism, 60. The University has affiliation with 147 high schools in the State. The College of Agriculture conducts the State soil survey and issues a series of monthly bulletins. The entire income of the University is \$644,000, chiefly from the State. The library contains 108,000 volumes. A new department of journalism was opened in Sept., 1908. A new agricultural building to cost \$100,000 is in course of erection. The President is A. R. Hill.

MITCHELL, DONALD GRANT. An American essayist, known especially (under the pseudonym of "Ik Marvel") as the author of *Reveries of a Bachelor*, died on December 15, 1908. He was born in Norwich, Conn., on April 12, 1822, the son of the jurist Stephen Mix Mitchell (who successfully defended the Connecticut settlers' claim to the Ohio tract, called the Western Reserve), was a pupil in Dr. John Hall's Academy at Ellington, and graduated at Yale in 1841. During the next three years he lived and worked on a farm near Norwich, and incidentally contributed to the *Albany Cultivator*. Then followed two years of residence on the Isle of Jersey, and about a year of travel upon the Continent, which gave him the material for his first volume, *Fresh Gleanings; or a New Sheaf from the Old Fields of Continental Europe* (1847). He then began to study law in New York City, but was compelled by his delicate health to abandon that, and again went to Europe. A sojourn in Paris, during the troubled times of 1848, gave him the matter for his book *The Battle Summer; or Paris in 1848* (1849). The following year he published *The Lorgnette; or Studies of the Town by an Opera-Goer*, satirical sketches; and then came his *Reveries of a Bachelor* (1850) and *Dream Life* (1852), whose graceful literary style, delicate imaginative quality, and gentle and genial philosophy made their author famous and beloved by readers of such literature. Less widely read, very likely, yet no less gracefully expressed, and of better literary quality, withal, is his writing about farming and gardening, especially in his two volumes *My Farm at Edgewood* (1863) and *Wet Days at Edgewood* (1865), wherein we have a happy blending of the practical knowledge of the gentleman farmer, with the

attitude toward agriculture of the sympathetic student of the best literature on that subject.

Mr. Mitchell was United States Consul at Venice from 1853 to 1855, and while there collected material for a history of the Venetian Republic, which remained unwritten. In 1855 he bought his country place, Edgewood, where he passed the remainder of his life, writing about farming and landscape gardening, and doing much skilful and effective work in the latter profession, as his own grounds and the City Park, at East Rock, New Haven, bear witness. Besides the volumes already mentioned, his publications include: *Fudge Doings* (1855); *Seven Stories with Basement and Attic* (1864); *Rural Studies* (1867); *Dr. Johns* (1866), reminiscent of Dr. John Hall, whose school he attended at Ellington; *About Old Story Tellers* (1878); *Daniel Tyler* (1883); *The Woodbridge Record* (1883); *Bound Together* (1884); *Out-of-Town Places* (1884); *English Lands, Letters and Kings* (1889); and *American Lands and Letters* (1897).

MITCHELL, SAMUEL CHILES. An American educator. He was born in Coffeerville, Miss., on Dec. 24, 1864. He graduated at Georgetown (Ky.) College in 1888. He was professor of history and Greek at Mississippi College during 1889-91; of Latin at Georgetown College during 1891-95; and of history at Richmond College during 1895-1908. In 1908 he became president of the University of South Carolina.

MÖBIUS, KARL AUGUST. A German zoologist, died on Apr. 26, 1908. He was born in Eilenburg on Feb. 7, 1825, studied natural history in Berlin under Ehrenberg and Johannes Müller, and in 1853 became assistant to Professor Lichtenstein, then director of the Zoological Museum in Berlin, through whose influence he got a teaching position in Hamburg. In 1868 he was made professor of zoölogy at Kiel, where he made an especial study of marine animals, with results set forth in *Die Fauna der Kieler Bucht* (2 vols., 1865-73), in the preparation of which he was assisted by H. A. Meyer. He also made important observations and collections in Mauritius, the Seychelles, and elsewhere. He was especially interested in the establishment of the Kiel Zoological Gardens, which were completed in 1880. In 1887 he became director of the new Zoological Museum at Berlin, a position he retained until 1905. He was president of the fifth International Zoological Congress, at Berlin, in 1901. His publications include *Die echten Perlen* (1857); *Neue Seeesterne* (1859); *Die Auster* (1877); *Die Fische der Ostsee* (1833), and *Aesthetische Beurteilung der Säugetiere* (1900).

MODERNISM. See ROMAN CATHOLIC CHURCH, and FRANCE and AUSTRIA-HUNGARY, sections on *History*.

MOHMAWDS. See INDIA, *History*.

MONTANA. One of the Northwestern Division of the United States. Its area is 146,572 square miles. The population, according to Federal estimate, was, in 1908, 323,655.

MINERAL PRODUCTION. The aggregate value of the mineral products of the State in 1907 was \$60,663,511, which was a considerable decline from the value of the product in 1906, which was \$74,126,567. Of this reduction in values the most striking was in the production of copper, which in 1907 was \$44,852,758 from 224,263,789 pounds, while in 1906 it was \$56,877,341

from 294,701,252 pounds. The value of the silver produced decreased from \$8,027,072 in 1906 to \$7,345,500 in 1907. The quantities for the respective years were 11,980,705 and 11,129,600 fine ounces. Clay, too, showed a decreased production in 1907 as compared with the preceding year. In the former year 167,987 fine ounces were produced, valued at \$3,472,600, while in 1906 the production was 216,188 fine ounces, valued at \$4,469,014. There was a small increase in the production of coal in 1907 over the amount produced in 1906. In the former year there were produced 3,907,082 short tons, valued at \$2,016,857, while the production in 1906 was 3,240,357 short tons, valued at \$1,829,921. Other mineral products of the State are lime, lead, sand and gravel, stone, and zinc.

The metal output of the State in 1908 is not likely to show great increase over that of the preceding year, considering the unfavorable conditions at the close of 1907 and during the preceding three months. The largest reduction plant in the State, the Washoe smelter, Anaconda, was closed during this time, and in June the smelter at Great Falls was badly damaged by floods in the Missouri River, which caused the cessation of operations during three months. Several small copper and lead plants were under construction during the year. The Director of the Mint estimates the gold production of the State in 1908 as valued at \$3,322,551, against \$3,472,600 in 1907; and the production of silver as 11,518,913 fine ounces, against 11,129,600 in 1907. It is estimated that the coal production of the State in 1908 did not exceed 60 per cent. of that of 1907. This decline was caused by the business depression and by an oversupply of fuel mined during the summer and early fall of 1907. The production of copper in 1908 was 255,446,447 pounds.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 94,000 bushels, valued at \$85,000 from 4,000 acres; spring wheat, 3,703,000 bushels, valued at \$3,185,000 from 153,000 acres; oats, 10,566,000 bushels, valued at \$5,177,000 from 254,000 acres; barley, 875,000 bushels, valued at \$534,000 from 25,000 acres; rye, 40,000 bushels, valued at \$27,000 from 2,000 acres; potatoes, 2,760,000 bushels, valued at \$1,932,000 from 20,000 acres; hay, 1,050,000 tons, valued at \$8,768,000 from 525,000 acres; flaxseed, 104,000 bushels, valued at \$104,000 from 9,000 acres. The oat crop in 1908 shows a decrease from that of 1907, which was 11,760,000 bushels. In the production of hay there was a considerable increase over the crop of 1907, which was 850,000 tons. Potatoes, too, showed an increase over the crop of 1907, which was 2,700,000 bushels. The acreage in flax showed a decided decrease. In 1907 34,000 acres were given to this product, while the crop was 436,000 bushels. The increase in agricultural development in recent years is due largely to the irrigation improvements carried on in the State by the United States Reclamation Service. (See IRRIGATION.) The numbers of farm animals on Jan. 1, 1909, were as follows: Horses, 304,000; cattle, 980,000; sheep, 5,634,000; swine, 68,000. The increase in dairy cattle has been large since 1900. Sheep and swine have also increased materially. The wool clip for 1908 was

32,200,000 pounds, valued at \$5,911,920, giving the State first rank in the production of wool and the number of sheep.

MANUFACTURES. The special census of 1905 showed manufactured products valued at \$66,415,400, as compared with \$52,744,900 in 1900. Most of the value was represented by the smelting and refining of copper. (See paragraph *Mineral Production*.) Other industries and the values of their products were: Lumber and timber products, \$3,024,674; flour and grist mill products, \$2,003,000; malt liquors, \$1,731,700; and railway shop works, \$1,572,400. The values credited to leading centres were: Anaconda, \$28,581,500; Great Falls, \$13,292,000; Butte, \$2,132,872; and Helena, \$1,309,746.

EDUCATION. In 1906, the last year for which statistics are available, the number of children in the State of school age, 6 to 21, was 72,498. Of these 48,744 were enrolled in the public schools and 34,738 were in daily attendance, while 5,000 were enrolled in private schools. The number of school districts in which some school was held was 833. There were 25 district high schools and 15 county high schools. There were in the State 228 men teachers, with an average salary of \$87.30 per month, and 1573 women teachers, with an average monthly salary of \$56.07. The course of study was revised for 1907-8, following the introduction of a new series of textbooks.

FINANCE. The report of the State Treasurer for the fiscal years ending Nov. 30, 1907 and 1908, showed a balance on hand Dec. 1, 1906, of \$840,941. The receipts for 1907 and 1908 were \$6,343,012. The disbursements for 1907 were \$3,087,105 and for 1908 \$2,691,790, leaving a balance on hand Nov. 30, 1908, of \$564,116. The chief receipts were: from the General Fund, \$1,112,299; from School Income, \$454,321; from the Permanent School Fund, \$214,385; and from the Capitol Building Interest and Sinking Fund, \$152,743 for 1908. The chief expenditures in 1908 were on account of the General Fund, \$1,022,662; Permanent School Fund, \$271,420; School Income Fund, \$463,702; and School of Mines Permanent Fund, \$152,221.

POLITICS AND GOVERNMENT. There was no session of the State Legislature in 1908. On Feb. 1, Governor J. K. Toole announced his resignation from office, to take effect Apr. 1, on account of ill health. The sixteen-hour railway law passed by the legislative session of 1907 was declared constitutional by the Supreme Court on Feb. 25. On Jan. 3, Judge Hunt of the United States Court, declared Joseph Shannon, former member of the Legislature from Butte, and President of the State organization of the Western Federation of Miners, William Cutts of the Carpenters' Union, and A. R. Edwards, a prominent labor leader, guilty of contempt of court for violating an injunction restraining interference with the Rocky Mountain Bell Telephone Company, by the forcible ejection of two non-union workmen from the company's property in Butte. Judge Hunt declared that the laws of the country were paramount and must be obeyed. He said that while he believed in the right of labor to organize, it must obey the orders of the court, which stand as laws until reversed. The men were sentenced to jail for three months each, and in addition, Cutts and Edwards were fined \$200 and \$100 respectively. On Mar. 12, David Pratt of Billings, a prominent stockman and politi-

cian, pleaded guilty in the Federal Court to unlawful enclosure of the public domain and was sent to jail for forty-eight hours and fined \$250. On July 4 Anaconda celebrated the 25th anniversary of the breaking of ground for the building of the city and its smelters.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention met at Butte May 14. The delegates chosen were instructed to vote for William H. Taft for President. The Democratic State Convention met on July 1, and chose delegates instructed to vote for William J. Bryan for President. The Republican State Convention for the nomination of State officers met at Helena on September 17. Edward Donlan of Missoula was nominated for Governor. The Democratic State Convention met at Anaconda on Sept. 8 and nominated Edwin L. Norris for Governor. The result of the election on Nov. 3 was very close in the State. William H. Taft received a plurality of about 3,000 votes over William J. Bryan (Taft, 32,333; Bryan, 29,326; Debs, 5,855; Chafin, 837; Hisgen, 443). Norris, Democrat, was elected Governor, but all the other State officers elected are Republicans.

OTHER EVENTS. The resumption of the operation of the mines and smelters in Butte and Anaconda, belonging to the Amalgamated Copper Company, on Mar. 1, caused great rejoicing in that city and in Anaconda. These plants, together with the various sawmills, coal mines, and quarries throughout the Northwest, employ an aggregate of 20,000 persons. In Anaconda, the Washoe smelters of the company employ 3,000 men, and are the sole support of the city. The schedule of wages prevailing before the suspension in 1907 remains unchanged. The Iron Mountain drainage tunnel, one of the most remarkable works in engineering ever undertaken, was completed on Mar. 12. This tunnel had been under construction for more than ten years and is more than a mile long. On Apr. 15, Hauser Lake Dam in the Missouri River, 20 miles from Helena, burst on account of floods, and caused a loss of more than \$500,000. The power generated by this dam was used by the Butte mines and Washoe smelters at Anaconda. In the early part of June floods washed away portions of the railroads entering Butte, and for a time the city was completely cut off from train service with the outer world. The floods caused a suspension in several of the large works of the State. Losses exceeding \$1,000,000 were caused by forest fires, which broke out in Big Timber, the county seat of Sweet Grass County, on Mar. 13. Twenty-two persons were killed, as many more injured, and a passenger train and half a freight train crushed into splinters as the result of a collision on Sept. 25 on the Northern Pacific Railroad near Youngs Point, 4 miles from Park City. On Nov. 3 fire destroyed the new town of Taft on the St. Paul Railroad, west of Missoula. This was the second time in a few months that this town was destroyed by fire.

STATE OFFICERS: Governor, Edwin L. Norris, Dem.; Lieutenant-Governor, William R. Allen, Rep.; Secretary of State, A. N. Yoder, Rep.; Treasurer, Elmer E. Esselstyne, Rep.; Auditor, H. R. Cunningham, Rep.; Attorney-General, A. J. Galen, Rep.; Adjutant-General (to be appointed); Superintendent of Education, W. E. Harmon, Rep.

JUDICIARY. Supreme Court: Chief Justice, Theo. Brantley, Rep.; Justices, Henry C. Smith, Rep., William L. Holloway, Rep.; Clerk, John T. Athey, Rep.

The State Legislature of 1909 is composed of 17 Republicans and 10 Democrats in the Senate, 33 Republicans and 38 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section Congress.

MONTENEGRO. An independent principality of the Balkan peninsula. Area, 3,506 square miles; population, about 250,000. About 20,000 Montenegrins live in adjacent countries. Greek-Orthodox number 223,500; Roman Catholics, 12,500; Mohammedans, 14,000. Cetinje, the capital, has 4,500 inhabitants; Podgoritz, 10,000; Dulcigno, 5,100; Niksic, 3,900; Antivari, 2,300. Education is free and compulsory. Elementary schools are supported by the government. At Cetinje there is a theological seminary, a boys' gymnasium, and a girls' gymnasium supported by the Empress of Russia. Land is held either in domestic communism or in small private freeholds. Agriculture and grazing are the principal occupations. A large part of the country is uncultivable. Maize, barley, buckwheat, oats, potatoes, wine, olives, and tobacco are cultivated. The manufacture, sale, and export of tobacco have, since 1903, been the monopoly of an Italian syndicate—the privilege having been granted for 25 years. Imports and exports in 1906 amounted to 5,203,700 and 1,705,000 kronen respectively (1 krone = 20.3 cents). The trade is mainly with Austria, imports from which were 3,582,500 kronen, and exports to which, 1,700,000 kronen. Turkey comes next, with 1,410,700 and 162,500 kronen respectively. There are good carriage roads. The first railway, 100 miles long, is being constructed from the port of Antivari to Niksic, in order to reach the iron mines which are being opened. There are 528 miles of telegraph line.

A Constitution was granted by Prince Nicholas I., who has reigned since 1860, on Dec. 19, 1905. The unicameral National Assembly consists of 74 members, of whom 62 are elected by universal suffrage, and 12 are members *ex officio*. The latter include the Greek-Orthodox Metropolitan, the Roman Catholic Archbishop, the Mohammedan Mufti, six high State officials, and three generals appointed by the Prince. The ports are closed to the ships of war of all nations. The administration of the maritime and sanitary police on the coast is in the hands of Austria. The budget for 1907 estimated the revenue and expenditure, respectively, at 2,980,000 and 2,888,893 kronen. The public debt stood in 1907 at 1,657,192 kronen.

The army consists of a tribal or patriarchal militia, to which each household contributes a man. There are 2 battalions of infantry and 2 battalions of artillery maintained for instruction purposes, about 2800 men passing through the three infantry and two artillery courses each year. The only additional training they receive is that given in the 10 annual village musters for rifle practice. Mohammedans have a separate organization and would probably refuse to fight other Mohammedans. There are 58 battalions of infantry and 12 batteries of artillery, nominally organized into 11 brigades. There is no cavalry. The total fighting strength

is between 50,000 and 60,000 men, of which probably one-half could be put into the field.

HISTORY. By an edict of Nov., 1905, a parliamentary government was instituted through the creation of a Skupschtina to consist of 76 members—56 elected by the military districts, 6 by the principal towns, and 14 *ex officio*. In April, 1907, a transition Ministry was appointed under M. Tomanovich, for the purpose of arranging a coalition between the parties, whose struggle had brought the preceding Ministries quickly to an end. The Skupschtina was dissolved in June, 1907, and the elections of Oct. 31 rendered the Skupschtina entirely Conservative in character. In December it was reported that a plot had been formed against the government with the design of killing members of the royal family and of the Cabinet. It was laid at the door of the National Democratic Party, Premier Tomanovich charging them directly with the crime. The trial for treason was begun at Cetinje on May 25th, and some sensational testimony was brought out, a Bosnian journalist having testified that the Crown Prince had been concerned in the manufacture of bombs which were to be used against Prince Nicholas. Sentence was rendered on June 27th. Six of the persons were condemned to death, 3 to imprisonment for life, 27, among whom were 5 ex-Ministers, to from 6 to 20 years' imprisonment, 13 to from 2 to 10 years' detention, and 2 were discharged.

The paramount interest of the year centred in the course pursued by Montenegro after Austria's announcement of her annexation of Bosnia and Herzegovina. Immediately on the publication of that announcement, Prince Nicholas, in a public manifesto, expressed his grief at the annexation, and declared that since the Treaty of Berlin had been so grossly violated Montenegro was no longer bound by the restrictions which the treaty imposed on her liberty of action. For an account of subsequent events and their relation to general European affairs, see the article BALKAN QUESTION.

MONTSERRAT. An island of the West Indies, one of the Leeward Islands (q. v.), of which it constitutes a Presidency. Area, 32 square miles; population (1906), 12,215. The lime and other fruit trees are largely grown. There is a flourishing fruit and vegetable preserving industry. The imports in 1907-8 amounted to £32,756; the exports, £35,183, including 365,000 pounds of sea island cotton, valued at £27,850. The revenue in 1907-8 was £10,233; the expenditure, £8,016; and the public debt, £11,100. The Commissioner in 1908 was Lieut-Col. W. B. Davidson-Houston.

MORAVIANS, called also the UNITED BRETHREN (Unitas Fratrum) and the MORAVIAN CHURCH. An evangelical denomination which had its beginning in Bohemia and Moravia among followers of John Huss. It was established in America in 1875, in Georgia, where a colony of Moravians had settled, but five years afterward removed to Pennsylvania, where they built the towns of Bethlehem and Nazareth. The Moravians had in 1908 a total number of 17,820 communicants, of which the American Moravian Church North included 13,986 and the American Moravian Church South 3,834. There were 119 churches and 139 ministers. In the Northern Province there are 41 Missionary societies, with a membership of

2956. In the Sunday schools of the church there were in 1908 14,115 scholars and 1524 officers and teachers. Funds are maintained for retired ministers and widows of ministers. The Church sustains missions in Africa, Alaska, Canada and Bohemia. A Home for Lepers is supported in Jerusalem. Among the educational institutions under the auspices of the Moravians are the Moravian College and Theological Seminary at Bethlehem, Pa., Moravian Parochial School for Boys, the Moravian Seminary for Girls, both at Bethlehem, Pa.; Linden Hall Seminary for Girls at Lititz, Pa.; and Nazareth Hall for Boys at Nazareth, Pa. The official organ of the Church is *The Moravian*, published at Bethlehem, Pa. The Provincial Synod of the American Moravian Church North was held at Lititz, Pa., in September, 1908. The next Synod of this branch will be held in 1913. The General Synod of the Church throughout the world will be held at Herrnhut, Saxony, Germany, in June, 1909.

MOROCCO. An independent country of north-west Africa. Area, 234,000 square miles; population, about 8,000,000, including 4,000,000 Berbers, 3,600,000 Arabs and Moors, from 150,000 to 300,000 Jews, and 250,000 negroes and mixed. The capitals are Fez, 140,000 inhabitants; Morocco, 50,000; and Mequinez, 25,000. Tangier, the principal port, has about 25,000 inhabitants; Casablanca, 30,000; Rabat, 30,000; Mogador, 22,000; Safi, 10,000; Mazagan, 10,000; Larache, 10,000.

PRODUCTION, COMMERCE, ETC. Agriculture and stock-raising are the principal industries. The native manufactures include leather, pottery, textiles and carpets, copper and brass goods, silver filigree, etc. There are no reliable and complete statistics of foreign commerce. According to the French Creditors' Commission the total oversea imports and exports in 1907 amounted to about \$8,430,000 and \$6,400,000 respectively, while according to another statement the total foreign trade of Casablanca, Rabat, Mazagan, Safi, and Mogador alone amounted to nearly \$12,390,000. For 1906 the total value of imports was given as \$14,200,000, and of exports, \$18,276,000. The principal articles of imports are tea, rice, wines, beer and spirits, coffee, silk goods, woollens, paraffin candles, wood and iron manufactures, and petroleum. The principal exports are wool, sheepskins, goatskins, cattle, wax, eggs, almonds, and rubber. There are no railways. The British, French, German, and Spanish governments maintain post offices of their own at the ports. The district of Casablanca is now occupied by the French. The immediate effect of the bombardment and pillage of Casablanca in Aug., 1907, was the destruction of the native shops and stores and of the vast Arab hut quarter to the west of the town. But in a few months new shops, hotels, cafés, and restaurants had sprung up. The European population, which had previously numbered about 700, had reached by the middle of 1908 nearly 2,700, not including the troops. The holders of the new shops are mostly Frenchmen and Spaniards. One speedy result of the foreign occupation was the improvement of the roads—first those in the town, then the country roads. The lighting and sanitary condition of the streets have greatly improved, funds to meet the initial expense

having been obtained from the sale of unclaimed loot dropped by the Arabs in their flight.

GOVERNMENT, ETC. The present Sultan is Mulai Hafid, who rose against his brother Mulai Abdel-Aziz in 1907 and was recognized by the Powers in 1908. Persons under the protection of foreign consuls are exempted from the jurisdiction of native judges. The revenue derived from customs is about \$2,000,000 a year. Internal taxes are collected without any system, each tax-gatherer having to deliver a certain sum, irrespective of the amount collected. The amount of the public debt is not known. A French loan of 62,000,000 francs in 1904 is secured by the customs. The army consists of about 3000 slave soldiers and about the same number of negro cavalry, constituting a sort of guard for the Sultan and quartered at his capitol wherever it may be located. There is also the mounted police force of 8000 to 10,000, and a few unorganized batteries of artillery numbering about 800 men. In addition to this, irregular cavalry and infantry could be mobilized during a war to the number of 40,000.

HISTORY.

RÉSUMÉ. At the conference of the Powers at Algeiras Jan. 16 to April 7, 1906, France and Spain were commissioned to maintain order on the Moroccan coast. The two mandatory Powers were strictly limited in their authority. The Conference recognized the sovereignty of the Sultan and left his territory intact. Freedom of commerce on equal terms to foreign nations was guaranteed. Order in the eight Moroccan ports was to be maintained by a police force under French and Spanish officers, but recruited from the Moors and subject to the Sultan's authority. Certain reforms were demanded of the Moroccan government by the Powers. The organization of the police force was delayed by the prevalent internal anarchy, and meanwhile events occurred which called for the active interference of France and Spain (1907). In the first place a French pioneer, Dr. Mauchamp, was murdered by the natives at Marakesh. The French troops thereupon seized and occupied the town of Ujda, near the Algerian border, and declared their intention to remain there until guarantees of security were given. In holding Ujda France was within her rights, the power to protect her Algerian frontier having been conceded to her by treaties of long standing. A more serious event occurred in July, 1907, when, in accordance with the agreed programme for reform, the French began to assume control of the customs of the ports. The outbreak occurred at Casablanca on the Atlantic coast, where the appearance of the new customs officers angered the tribesmen, who on July 30 attacked a number of European laborers in the quarries, killing them and mutilating and burning their bodies. The tribesmen then raided the town and, after attacking the few European residents, retired with much plunder. French and Spanish warships were immediately ordered to Casablanca. Forces were landed on Aug. 4, 1907, and were fired upon by the tribesmen. A bombardment of the town followed. On Aug. 7 an expeditionary force of French and Spanish under Gen. Drude occupied Casablanca. Conflicts with the tribesmen took place on Aug. 28 and Sept. 2, 1907. The enemy were repulsed by the machine guns and the fire of the warships. In September terms of peace were submitted, and some of the tribesmen accepted them. A state of war still existed at the close

of the year, and the outcome was undetermined. Meanwhile matters had been complicated by the appearance of a rival Sultan in the field, in the person of Mulai Hafid, a brother of Sultan Abd-el-Aziz. Mulai Hafid gained early a large following, and in certain parts of the country was accepted as Sultan. In the autumn Abd-el-Aziz removed his court from the capital, Fez, the most fanatical of the Moslem cities, to Rabat. He had asked a loan from France, but it had not been granted. General Drude, whose course seemed lacking in energy, was replaced by General d'Amade, who began an aggressive campaign against the tribesmen. Such was the situation at the beginning of 1908.

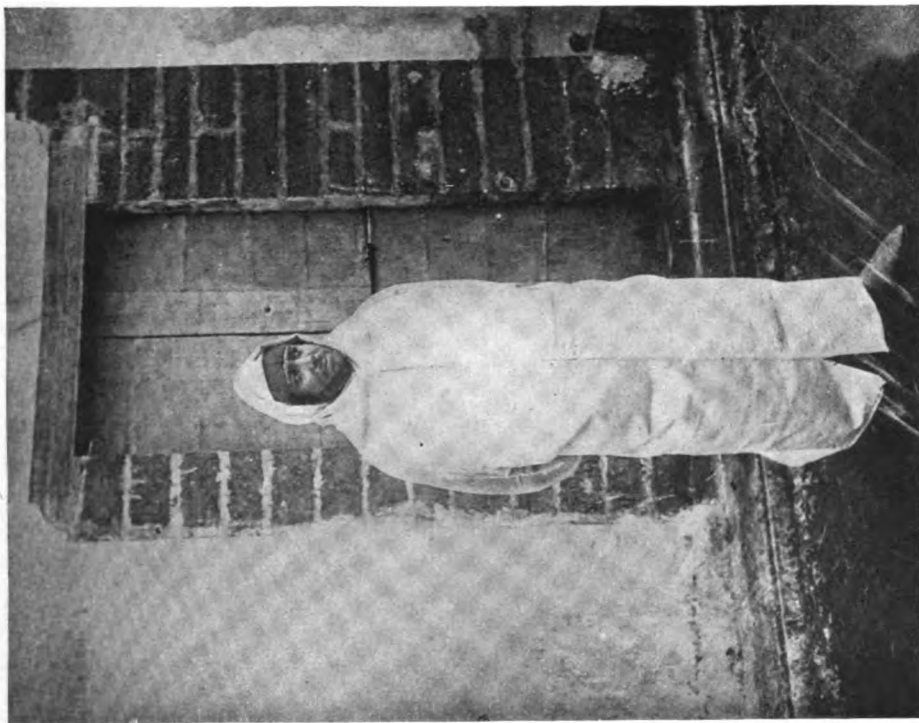
THE EVENTS OF THE FIRST THREE MONTHS. On Jan. 11, 1908, Mulai Hafid was proclaimed Sultan at Fez, in place of his brother, who was deposed by the Ulema, or religious authorities. This event occurred almost simultaneously with the beginning of a more active military policy by the French. Gen. d'Amade sent out flying columns from Casablanca, and sought to extend his authority over the entire surrounding province of Chaouiya. A disaffected Sheik brought about a *coup d'état* at Fez which led to the deposition of Abd-el-Aziz, whose hold on the people had been weakened by his supposed subservience to the Christians. He had some months before sent a letter to the Ulema asking whether a Moslem ruler might, if he could not enforce the obedience of his own subjects, call to his assistance a Christian Power. This, in connection with the advance of the French, was said to have contributed to his deposition.

The forward movement of Gen. d'Amade continued during February; but success was difficult, owing to the comparatively small forces at his disposal and to his policy of dividing it into detachments. The tribesmen, however, were severely punished in these encounters. In the engagements of Feb. 17-18 around Abdul Kerim the French loss was considerable—57 killed, of whom 6 were officers, and 217 wounded—and some alarm was expressed by the French newspapers lest the French force was too small to cope with the tribesmen. The army was reinforced, but not heavily. On March 8 an engagement at M'Karto resulted in the routing of the Moors with severe loss. In March several tribes submitted. Gen. Lyautey, commander-in-chief in Algeria, was sent with M. Regnault, the minister to Morocco, on a mission of inspection. He left Casablanca on March 25 for the kasbah of Mediouna, and found that fertile region almost entirely deserted by its inhabitants. The chiefs there submitted and the tribesmen accepted a regular administration. On the next day he advanced to Bu Reshid, where the pacification became complete. The Moors were said to have been surprised by the clemency of the French invaders, being used to the ravages of the sherifian troops, even in their own country, and their chief fear seemed to be the restoration of the old régime. Meanwhile the French force had been considerably reinforced. When Gen. d'Amade took command they numbered 8400; at the end of February they had increased to 10,000, and afterwards additional troops were sent, making a contingent of about 4000. Thus the total strength was about 14,000, with 16 field guns, 6 mountain guns, and 20 mitrailleuses. Down to March 8, counting the casualties of the operations on the Algerian frontier, there were 99 killed, including 9 officers; 311 wounded, includ-

ing 12 officers; on the fleet 1 officer and 13 men were killed and nearly an equal number wounded. The French government had asked of the Chamber 16,121,425 francs for the war, but this did not cover the full cost to that time, which was estimated at 20,000,000 francs.

During March the region of the Madraka was occupied and practically reduced. While the French forces were still engaged there, it was learned early in April that a part of Mulai Hafid's army was advancing toward Settât, and that some of the troops of the Chaouiya territory were showing signs of revolt. Leaving 3000 men among the Madraka, Gen. d'Amade marched with the remainder, about 4000, upon Settât, and prevented the rising of the tribes. At that time the region of the French occupation was comprised within a curved line at about 50 miles from Casablanca, including as its main points Settât, Madraka, Fedala, and Bu Zenika. On April 16 the French camp at Menabba was suddenly attacked by a large body of the tribesmen who had marched overnight and driven in the outposts. The attack was so sudden that the French were obliged to fight hand to hand, and they were meanwhile harassed by the fire from a neighboring height. A company of the Foreign Legion, however, scaled the height and dislodged the Moors, who thereupon retreated, pursued by the French. The latter sustained considerable loss, 33 killed, including 1 officer, and 90 wounded, including 8 officers. The news caused some alarm in France, and occasioned in the press adverse comments on the French military tactics which had not prevented this surprise and which had not attacked the enemy first, although they were known to be in the neighborhood. In May there was further fighting against the Madraka, and the tribesmen were driven in the direction of Gaer, the French loss being slight. Severe fighting took place on the Algerian border. In an engagement between the Moors and the command of Gen. Vigy in southern Oran, May 12-13, the French lost 13 killed, including 3 officers, and 65 wounded, including 7 officers.

Meanwhile General Lyautey had returned from his tour of inspection and been relieved from his duties. The government, however, which was sharply criticised in some quarters for depriving him of his authority and for having interfered with him in the performance of his task, soon placed him in charge of southern Oran with enlarged powers. Meanwhile it was apparent that the strength of Mulai Hafid was increasing, and that soon the greater part of the country would declare for him. But little aid had been rendered by the French to Abd-el-Aziz, and their presence was even a source of weakness to him by compromising him in the eyes of the natives. While marching from Rabat toward Fez in May, his army was surrounded by hostile tribes in the territory of the Beni-Hassan, and the communications being cut off, a large part of it deserted and the remainder went back toward Rabat. Mulai Hafid meanwhile had sent a mission to Europe to ask for recognition. The embassy was informed by the Berlin Foreign Office that the German government could not treat with an authority not recognized by international law. An unofficial representation, however, was accorded to it. The Foreign Office declared that it would at once consider whether there was any occasion to communicate with the French government on the question of recognition. There



Photographs by Edwin Levick, New York

ABD-EL-AZIZ
THE DEPOSED SULTAN



MULAI HAFID
PROCLAIMED SULTAN, 1908

was some adverse comment in the French press on the fact that the German government had extended this measure of courtesy to the embassy. On June 7, Mulai Hafid entered the holy city at Fez, and immediately gave evidence of his national spirit by destroying the motley collection of automobiles, bicycles, printing presses, and other European contrivances, with which Abd-el-Aziz was wont to amuse himself. He also showed signs of a vigorous and arbitrary policy by promptly setting aside the agitator who had proclaimed the downfall of Abd-el-Aziz, and by restoring the tax which the previous Sultan had given up. The French policy was apparently confined to the protection of the South Algerian frontier and of the coast towns where European residents might be in danger, to retaining their grasp on the region around Casablanca, to the organization of the international police force, and to the observance of strict neutrality between the rival sultans.

OVERTHROW OF ABD-EL-AZIZ. In spite of these successes of Mulai Hafid, his rival was not yet finally overthrown, but that result was achieved in August. On July 12 Abd-el-Aziz started from Rabat toward Marakesh, with the design of extending his authority over the south, where it was said that the tribesmen were turning against his rival, to whom at first they had submitted. His advance was retarded by the French, who forbade him to cross the territory occupied by their troops. On Aug. 21, while in the neighborhood of Marakesh, his army was completely dispersed, not by the enemy, but owing to the treachery of his soldiers, who took advantage of a skirmish to throw the lines into disorder and scatter the entire force. The camp was plundered and the soldiers scattered in all directions. The Sultan with only a handful of men succeeded with great difficulty in escaping, and fled for protection to the French at Scttat.

Meanwhile Mulai Hafid had been proclaimed at Tangier. The German government sent a note to the Powers advising his immediate recognition, a course which provoked much adverse comment in France, who insisted that the recognition should not be accorded until the Powers had received guarantees that the Act of Algieras would be regarded and certain other conditions observed. (See FRANCE, paragraphs on *History*.Q) Another difficulty arose with Germany over the seizure by French officers of three German deserters from the Foreign Legion in Casablanca in November. On receiving the German protest the French government offered to refer the matter to arbitration, but Germany required first an expression of apology. It was refused by France, who offered, however, a simultaneous apology by both nations, and this compromise was accepted by Germany. See FRANCE and GERMANY, paragraphs on *History*.

France and Spain having signified to the Powers what the necessary conditions of recognition were, Germany consented, and there was no further trouble over the affair during the year. On Dec. 5 Mulai Hafid announced his agreement to the conditions which France and Spain imposed, in accordance with the principles laid down at Algieras. Among these conditions was the full responsibility for the public debts left by the previous Sultan. This laid a heavy burden on the new ruler, for the Maghzen's debts were estimated at \$30,000,000, to say nothing of some outside claims, and apparently the only unpledged assets were the remainder of the customs

dues. At the close of the year the deposed ruler was living quietly at Tangier, apparently reconciled to his fate. In September and October many French officers were withdrawn.

OTHER EVENTS. In May the mixed international police force for which the Act of Algieras had provided, but which had been organized very slowly, began its duties at Tangier. A noteworthy event of the year was the final surrender of Kaid Sir Harry MacLean, by Raisuli, who, it will be remembered, had seized him in July, 1907, and held him for ransom. In spite of the efforts of the British government, Raisuli refused to let him go, but on Feb. 6 released him in exchange for prisoners, and for the payment of £20,000, of which £5000 was to be given him at once, and the remainder after three years, on condition of good behavior. Raisuli and twenty-eight of his relatives became protected British subjects.

MORSE, CHARLES W. See BANKS AND BANKING.

MOTOR BOATS. See YACHTING.

MOTOR CARS. See AUTOMOBILES.

MOULTON, LOUISE CHANDLER. An American author, died on Aug. 10, 1908. She was born at Pomfret, Conn., on April 10, 1835. Her first volume of stories, *This, That, and the Other*, published in 1853, was immensely successful. She married William Moulton, a Boston publisher, in 1854. From 1870 to 1876 she was Boston literary correspondent of the *New York Tribune*, and from 1887 to 1892 she contributed a weekly literary letter to the *Boston Sunday Herald*. She is especially celebrated as a writer of stories for children. Her most notable books include: *Bed-Time Stories* (1873); *Some Women's Hearts* (1874; new ed. 1888); *Swallow Flights* (1878; reprinted 1892); *Random Rambles* (1881); *In the Garden of Dreams* (1896); *In Childhood's Country* (1896); and *At the Wind's Will* (1899).

MOUNT HOLYOKE COLLEGE. An institution of higher education for women, at South Hadley, Mass. founded in 1837. In the autumn of 1908 the attendance was 747. The faculty numbers 89. The 71st anniversary of the founding of the college was celebrated in Nov., 1908. A music building containing a concert hall, a library, and teaching and practice rooms is in process of erection, and was to be ready for use early in 1909. A president's house was also being built. The equipment includes seven buildings for instruction and eight for residence buildings. The endowment is \$201,000 and the income in 1908, \$226,992.58. There are 39,300 volumes in the library. The President is Mary E. Woolley.

MOUNT WILSON SOLAR OBSERVATORY. See ASTRONOMY.

MOZAMBIQUE. See PORTUGUESE EAST AFRICA.

MULAI HAFID. See HAFID, MULAI, and MOROCCO.

MULES. See STOCK RAISING.

MUNICIPAL GOVERNMENT. The conditions and tendencies in municipal affairs prevalent in 1907 continued in 1908. Particularly was this true of government by small commissions, as installed in Galveston, Tex., and Des Moines, Ia., in place of the large city council still commonly found. The movement for better municipal accounting and for the publication of comparable municipal statistics also gained

much new ground in 1908. Both direct legislation and the direct primary system progressed during the year.

GOVERNMENT BY COMMISSION. The unusual conditions brought about by the Galveston Flood were said to have given rise to municipal government by commission in that city, where five men administer the offices of the city. It might well have been noted that a precedent had been established years before in the creation of a commission of three to administer the affairs of Washington and the District of Columbia. The satisfactory results achieved by this District Commission may have encouraged the people of Galveston, Tex., to adopt the commission plan in their dilemma and the success of the plan at both Washington and Galveston has furthered its adoption in many other places. A half dozen or more other Texas cities, including San Antonio, Ft. Worth and Houston, in 1908 had commission governments, as had also Des Moines and Cedar Rapids, Iowa, Leavenworth, Kansas, Lewiston, Idaho, and Haverhill and Gloucester, Mass. South Dakota in 1907 authorized all its cities to adopt the commission plan, and at the same time that State made possible the initiative and referendum, with only five per cent. or one voters required on the petitions for a popular vote on any desired subject.

MUNICIPAL EXPERTS. The need for experts in the conduct of municipal affairs had been recognized to some extent for many years. At first this recognition was confined to the legal and engineering fields, and even there was applied chiefly in emergency work, like the construction of water-works, the framing of a charter, or the conduct of a case in court. Of late, the services of the expert have been extended to almost every branch of the municipal service, and to operation as well as to constructional work. But much remains to be done before it becomes generally recognized that expert supervision is required for the proper maintenance and efficient daily operation of a water or sewage filter, a refuse destructor or burner, an electric light plant or the accounting system of a city. Prof. A. Lawrence Lowell, of Harvard University, discussed municipal experts before the 1908 convention of the National Municipal League. He urged that non-professional representatives of the municipal public ought to direct the experts, and defined the relation of the two as follows: "The expert is expected to make his public work his career. He should devote his whole time to it, receive a liberal salary and be protected from removal except for cause. The non-professional is not to manage his department but to see that it is properly managed. He ought not to be expected to give a great deal of time to it, ought to be paid nothing or a much lower salary than the expert, and ought to give an account of his stewardship by coming up for reappointment or election at fixed intervals."

In line with the expert idea, although of a non-official or extra-official character, was the Bureau of Municipal Research, of New York City. During 1908 and previously, this Bureau was an efficient measurer and, in a wholly volunteer manner, had assisted in a number of important investigations of city departments, and was instrumental in starting much-needed

reforms in both the accounting and budget-making systems of New York City. Assistance from the Bureau was asked by a number of cities. The desirability of making the Bureau permanent by substituting an endowment fund for the present short-term subscription method of support was urged during the year.

UNIFORM ACCOUNTS AND REPORTS. Ohio, New York and Iowa have provided a law for uniform financial municipal reports, and also for the compilation and publication of these statistics by a State official. In Ohio, the law required uniform accounts, established and audited by a State department. Massachusetts has provided for the collection and publication of municipal financial statistics by the State. The cities and towns are not required to adopt any stipulated system of accounting, but the returns which each must make to the State must all be on forms prescribed for the purpose, and this tends toward ultimate uniformity of accounts. The essential thing, however, is not that every city and town in a State or in the whole country adopt and follow a single rigid system of accounts, but that the accounts should be so well planned and so intelligently kept as to make it possible to derive from them comparable figures for each branch of the municipal service. Uniformity of accounts is of course a great aid to this end. Each of the four States named published municipal financial statistics for one or more years. The Massachusetts report, issued for the first time in 1908 (by the Bureau of Labor Statistics), contained a valuable analytical introduction. A summary of uniform accounting progress, including many cities throughout the country, outside the four States named, may be found in a special report of the United States Bureau of the Census, *Statistics of Cities Having a Population of Over 30,000, 1906*. This report contains many valuable tables of financial statistics for the 158 cities above the population limit named. The figures given, as well as those in the four State reports already named, follow modifications of the scheme first devised by the Committee on Uniform Municipal Accounts and Statistics of the National Municipal League, which Committee had been at work on uniform accounting for a half dozen years previously. The League schedules were modified somewhat by the Bureau of the Census. The Bureau was coöperating, in 1908, with the various State departments to whom the collection of municipal statistics was entrusted. A notable book on city affairs appeared in 1908. It is entitled, *Problems of City Government*, and was written by Prof. L. Rowe, of the University of Pennsylvania.

MUNICIPAL LEAGUE, NATIONAL. An organization to promote the thorough investigation and discussion of the conditions and details of civic administration, and of the methods for selecting and appointing officials in American cities, and of laws and ordinances relating to such subjects. It was organized in New York in 1894 as a result of the Philadelphia Conference for Good City Government, held earlier in the same year. It comprises 155 affiliated organizations and 1500 individual members. It publishes an annual volume of proceedings which is a valuable reference book to students of municipal problems and to workers along municipal lines. The annual meeting for

1908 was held at Pittsburg, Nov. 16-19, in conjunction with the American Civic Association. The President is Charles J. Bonaparte, Baltimore; Secretary, Clinton Rogers Woodruff, Philadelphia.

MUNICIPAL OWNERSHIP. The change from private to public ownership continued during 1908, but outside of water-works perhaps the rate of change had diminished somewhat with the financial depression following the panic of the previous year and, in some American States, with the increasing regulation of public-service corporations by State commissions. Of the 20 largest cities in the United States, San Francisco is the only one wholly dependent on private companies for its water-supply, and on Nov. 12, 1908, San Francisco voted 6 to 1 in favor of a municipal ownership scheme. In Massachusetts, to take a State which has always been strong for municipal ownership, the remaining private water companies were disappearing so rapidly that all of the 33 cities and all but three of the towns having 8000 population or over owned their works. Of the 185 Massachusetts municipalities having public water supply, only 46 towns, with but 6.2 per cent. of the total population supplied, still depended on private water companies at the beginning of 1908. In Maine, which for many years had only two municipally-owned water-works, the companies operating in the larger places were rapidly being bought out by the cities and towns, under recent State legislation. Many interesting and instructive points in water-works appraisal were developed in connection with the recent Maine purchases. A recent paper by Leonard Metcalf ("Water-Works Valuations and Fair Rates, in the Light of the Maine Supreme Court Decisions in the Waterville and Brunswick Cases," *Proceedings American Society Civil Engineers*, October, 1908) states these points, cites various court rulings on valuation principles and proceedings, contains many useful formulas and tables, and concludes with a valuable list of references to papers on water-works valuations for purchase and for rate-fixing purposes. See WATER WORKS.

MUNICIPAL RESEARCH, BUREAU OF, See MUNICIPAL GOVERNMENT.

MURAVIEFF, NIKOLAI VLADIMIR. A Russian statesman, died in Rome on Dec. 14, 1908. He was born in 1850, and early entered the public service. He was president of the criminal section of the Senate from 1892 to 1894, and in 1894 was appointed Minister of Justice. In this position he rendered valuable service in reforming the administration of justice. He was appointed Russian arbitrator of the Venezuelan claims at The Hague in 1903, and in 1905 became ambassador to Italy. He was originally appointed to negotiate the peace with Japan, but was superseded after a few days by Sergius Witte.

MUSEUM OF FINE ARTS. An institution incorporated Feb. 3, 1870, at Boston. New buildings for the museum were under construction in 1908, and were to be opened in 1909. The estimated cost of these is \$1,533,000. They are situated on the Fenway, Boston. The building, as planned, has a number of department museums, with intervening corridors, loggias for rest and recreation; the ground floor is devoted to offices and to collections compactly installed for students; the main floor is devoted to collections shown to the best advantage for visitors.

All are amply lighted by windows. The Museum School of Drawing, Painting, and Modelling, with about 200 pupils yearly, will occupy a separate structure. Among the most important collections in the museum are collections of the original works of the art of Egypt, Greece, Rome, the Orient, and modern Europe and Asia; the Athenæum heads of George Washington and Mrs. Washington, plaster casts from antique and Renaissance sculpture, and the Morse collection of Japanese pottery. Collegiate courses in the history and observation of fine arts were carried on during the year. The income of the museum is \$110,000, and the annual expenditures about \$75,000. The visitors number about 275,000 annually. The president is Gardner M. Lane; the director, Arthur Fairbanks, and the secretary, Benjamin Ives Gilman.

MUSIC. The year 1908 showed no abatement of the phenomenal activity of musical organizations all over the civilized world. In fact, as regards the production of novelties in every branch of musical composition, the year may safely be said to surpass the record of any previous year. The value of most of these novelties is another story. A remarkable phenomenon is the instantaneous enthusiasm aroused in the United States by Debussy's music, especially by his opera *Pelléas et Mélisande*. While the success of this work here has eclipsed all records made in France, Germany's attitude is one of critical, and even skeptical, aloofness.

The question of salaries paid to operatic stars in the United States, which had been causing uneasiness among European managers for some time past, entered upon a new and critical stage. In order to prevent the depletion of their own opera houses some of the most influential of the Italian and South American impresarios have combined their interests and formed a "Trust Teatrale Italo-Argentino." The main objects are to secure absolute control of new works, and to attract the best artists by offering them practically an all-year contract as against a four or five months' contract in New York. The trust is able to do this since in South America the summer months constitute the operatic season.

THE UNITED STATES.

ARTISTS. Of all the foreign artists the well-known French composer Cécile Chaminade drew the largest audiences. It must be confessed, however, that popular curiosity rather than unusual artistic merit made her tour so successful. In her concerts, in which she played exclusively her own works, Mme. Chaminade revealed herself as a pianiste of considerable facility of execution, possessing a beautiful singing tone. Emil Sauer was heard again after an absence of nine years, and also as a composer in his E minor concerto. Josef Hofmann also could not resist the temptation of playing one of his own piano concertos, which only disclosed the fact that he lacks creative talent. Vladimir de Pachmann, Josef Lhevinne, Ossip Gabrilowitsch, Harold Bauer, Teresa Carreño, Katherine Goodson were warmly welcomed as established favorites. A new Dutch pianist, Jan Sickses, made a very favorable impression, and pleased by his smooth, velvety tone. Among violinists Mischa Elman, a Russian boy of only nineteen, astonished everyone by his truly marvellous powers. Not only in his flawless technical execution, but especially in the depth and breadth of his conception, he proved himself a mature artist. Fritz Kreisler had already established his repu-

tation as one of the foremost living violinists, but during the past year he showed himself more particularly as a masterly interpreter of the classics. His joint recitals with Josef Hofmann must be reckoned among the musical events of the year. Petschnikoff and Kubelik again fascinated their audiences with their magic power. Among the great vocalists Mmes. Gadski, Nordica, Calvé, Schumann-Heink and Sembrich showed their consummate art in numerous recitals throughout the country. Victor Maurel, after an absence of several years, appeared again in a few recitals, and was greeted with enthusiasm. Nor has David Bispham lost his attraction for his numerous admirers. But all these great artists were overshadowed by that incomparable German lieder singer, Dr. Ludwig Wüllner, whose art is absolutely unique, and whose tour of the country was one uninterrupted succession of triumphs. Among native artists Ernest Schelling, the pianist, attracted special attention. He returned after an absence of three years in Europe, and showed remarkable artistic growth. Mme. Bloomfield-Zeisler, Augusta Cottlow and Richard Buhlig appeared in many concerts. Among the violinists Arthur Hartmann and Albert Spalding scored splendid successes. Karl Klein shared laurels with Calvé on an extended tour.

ORCHESTRAL CONCERTS. The Boston Symphony Orchestra began its new season auspiciously under the conductorship of Max Fiedler of Hamburg, who three years ago was one of the "guest" conductors of the New York Philharmonic Society. Fiedler showed himself a musician of intense feeling, quiet, dignified and sparing of gestures. Besides their regular subscription concerts, the New York Philharmonic Society under Wassily Safonoff gave an extra memorial concert devoted to the works of MacDowell (q. v.).

The New York Symphony Society under Walter Damrosch devoted six of its concerts to the performance of compositions by Beethoven. All the symphonies and many overtures were played. In this cycle a newly discovered Trio of the Bonn master for harpsichord, flute and bassoon received its first performance in America. Tschai-kowski's *Eugen Onégin* was also given in concert form with such success that it had to be repeated at the following concert. Mr. Damrosch offered a unique and extremely interesting entertainment when he engaged the classic dancer Miss Isadora Duncan for pantomimic dances. The orchestra on these occasions rendered Gluck's *Iphigenia in Aulis*, Beethoven's *Seventh Symphony*—styled by Wagner the "Apotheosis of the Dance"—and several Preludes and Mazurkas of Chopin. Sam Franko's Concerts of Old Music were so successful that he enlarged his field of activity by the organization of the Bach Choral Society, which appeared with the orchestra in a Bach program.

The Pittsburg Symphony Orchestra, Emil Paur conductor, secured a new and highly efficient concert-master in the young Dutchman Eduard Tak, who had a rare opportunity of showing his talent when, owing to the illness of Calvé, he was suddenly called upon to take her place as soloist. He made an excellent impression with Beethoven's concerto for violin. The Philadelphia Symphony Orchestra, Carl Pohlig conductor, was increased from sixty to eighty players. The ever increasing demand for high-class orchestral music was attested by the establishment of several new orchestras. Thus, in

Boston, Albert Debuchy appeared at the head of a new orchestra which devotes its energies exclusively to the production of works by French composers. At one of the concerts Berlioz's *Les Troyens à Carthage* was given in concert form. A regular symphony orchestra was organized in Wilmington, Del., by A. H. Rodemann. In Seattle, Wash., the first season of eight concerts of the new Symphony Orchestra under Michael Ke-grize aroused such interest that a fund was started toward the erection of a large concert hall.

CHAMBER MUSIC. To the large number of excellent organizations several new ones were added. The return to America of Alwin Schroeder, formerly the 'cellist of the Kneisel Quartet, led to a reorganization of the Boston Symphony Quartet, which also changed its name to the Hess-Schroeder Quartet. It now consists of Messrs. Hess, Theodorowicz, Ferir and Schroeder. From among the players of the Boston Symphony Orchestra Richard Czerwonky formed the Czerwonky Quartet (Czerwonky, Fielder, Scheurer, Nagel). Their splendid playing won instant favor. The famous Kneisel Quartet (Kneisel, Roentgen, Svecenski, Willeke) played at one of their concerts the two completed movements of a posthumous quartet by Grieg. The Flonzaley Quartet (Betti, Pochon, Ara, d'Archambeau), regarded as one of the finest in all Europe, visited the United States, and fully justified its reputation.

OPERA. At the Metropolitan Opera House in New York 136 performances were given from a repertoire of 33 operas by 16 composers. According to nationality these were divided as follows: Italian, 16 works by 7 composers; German, 14 works by 6 composers (but Mozart's *Don Giovanni* and Flotow's *Marta* in Italian); French, 3 works by 3 composers. Puccini, represented by 5 works, had 29 performances. Next ranks Wagner with 28 performances of 9 works; third Verdi with 27 performances of 4 works. The operas most frequently heard were *Faust* and *Traviata*, each 9 times. Next comes *Madama Butterfly*, 8 times; then *Tristan und Isolde*, 7 times. The works that had only one representation were Mascagni's *Iris*, Donizetti's *L'Elisir d'Amore*, and Wagner's *Holländer*, *Meistersinger*, *Rheingold*, and *Parsifal*. In vain do we look through the records for *Lohengrin*! The year shows the same undue preponderance of Puccini as the preceding; and the cause also was the same. Only two novelties were given. D'Albert's *Tieftand* (Nov. 23), unquestionably this composer's best work so far, was received with approval; while it is difficult to find a reason for the production of Puccini's first operatic attempt, *Le Villi* (Dec. 17).

An event of the first magnitude was the appearance of Gustav Mahler as conductor of German operas. This artist is not only one of the foremost representatives of the modern German school of composition, but also one of the greatest of conductors and authorities on operatic affairs in general. He made his début on New Year's day with *Tristan und Isolde*, and created a profound impression. In one respect he surpasses all conductors ever heard at the Metropolitan, in the subordination of the orchestra to the singers. His dynamics were all pitched in a lower key, so that even in the fortissimo passages the voices could be distinctly heard. He also took some of the tempi faster than we have been accustomed to hear; but in this respect he was less convincing. Beethoven's *Fidelio* re-



DR. LUDWIG WÜLLNER



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EDWARD A. MACDOWELL



MISCHKA ELMAN



MME. CÉCILE CHAMINADE

ceived magnificent performances under Mahler, who played it exactly as he had arranged it for Vienna with a new division of the scenes. Likewise Mozart's *Don Giovanni* was given in Mahler's revision. The accompaniments to the recitatives were played by the conductor himself on a piano in the orchestra. The influence of Mahler's artistic moderation showed itself unmistakably in the work of his colleague Mr. Alfred Hertz, who improved the excellent character of his work by toning down the scale of his dynamics. Another début as conductor was that of Arturo Toscanini, one of the foremost Italian conductors and most active apostles of Wagner in Italy. His first appearance, when he led *Aida* on the opening night (Nov. 16), brought him an ovation; but his greatest achievements were the superb performances of *Götterdämmerung*, which equalled the best ever heard. The other Italian conductor Spetrino, was a distinct disappointment. Not only did he not rise above the ordinary routine, but his work was always rough and noisy. Among the sopranos were Mmes. Fremstad, Gadski, Leffler-Burkard, Morena, Sembrich, Destinn, Kaschowska, Gay, Fornia, Alda, Farrar; among the contraltos Mmes. Kirkby-Lunn, Homer, Jacoby. The list of tenors included Caruso, Bonci, Burrian, Burgstaller, Schmedes; the basses Van Rooy, Feinhals, Noté, Goritz, Didur, Scotti, Blass, Hinckley, Witherspoon.

An event of far-reaching significance was the retirement of Director Conried. He was succeeded by Signor Gatti-Casazza and Andreas Dippel as joint directors. But, as happened in the case of the double directorship of the Paris Grand Opera, differences soon arose, which were adjusted by the appointment of Gatti-Casazza as sole director. Among the things promised in the near future is opera in English. In order to stimulate the ambition of the American composer a prize of \$10,000 was offered for the best grand opera by a native American.

At the Manhattan Opera House in New York, 103 performances were given, the repertoire consisting of 26 works by 17 composers. According to nationality these were distributed as follows: Italian, 15 works by 8 composers; French, 8 works by 7 composers; German, 3 works by 2 composers (sung in Italian). Verdi is represented by 6 works in 23 performances. The operas given most frequently were the well-worn *Lucia* and one of the novelties, *Louise*, each presented 11 times. Four novelties were offered: Charpentier's *Louise* (Jan. 3), Giordano's *Siberia* (Feb. 5), Debussy's *Pelléas et Mélisande* (Feb. 19) and Massenet's *Jongleur de Notre-Dame* (Nov. 27). While all were received favorably, Debussy's work attracted the greatest attention and proved to be the event of the season. Some ardent admirers immediately proclaimed Debussy a greater master than Wagner, and attempted to prove that the Frenchman had actually realized the ideal for which the German master had vainly striven. The strangeness, elusiveness, and absolute novelty of the music combined with entrancing stage pictures captivated many, while others were decidedly repelled. But on the whole the admirers were in the majority, so much so that at present New York is the centre of the Debussy cult. Not even in Paris has the French master so many nor such enthusiastic adherents. Massenet's opera suffered considerably from the fact that the composer had rewritten the tenor

part of the juggler as a soprano part to please Miss Garden. A quasi-novelty was Ricci's *Crispino e la Comare*, which had not been heard in New York since 1884. It certainly was not worth the trouble of rescuing from oblivion. Another revival was that of Giordano's *Andrea Chenier*, which had only one hearing in 1906. Verdi's immortal *Otello*, after its unpardonable neglect of several years, was greeted with joy. The splendid performances of Saint-Saëns' *Samson et Delilah* were an act of rather belated justice to this beautiful work. Although it has frequently figured on concert programmes, the critics and public alike declared it a failure as an opera on its only presentation at the Metropolitan in 1895.

While the programme at the Metropolitan was determined chiefly by two tenors, that at the Manhattan was influenced by two sopranos, Tetrizzini and Mary Garden. Especially the former created a furor in the threadbare operas of the old Italian school. From the standpoint of the purely vocal art, however, the reason for such demonstrations can be understood. On the other hand, the causes of Miss Garden's success are not so evident. Undoubtedly the strong Debussy party in New York was one factor. Calvé and Melba appeared in a limited number of performances, the latter in at least one new rôle, that of Desdemona in *Otello*. Among the sopranos were also Mmes. Gerville-Réache, Zeppilli, Bressler-Gianoli, Agostinelli, Jomelli, Russ, Labia, Trentini. The company was weak in contraltos. Among the tenors, four stood out as artists of the first rank: Dalmores, Périer, Zenatello, Constantino; while the chief basses were Renaud, Dufranne, Sammarco, Ancona and Arimondi. Besides the regular performances some operas (*Pagliacci*, *Cavalleria Rusticana*, *Aida*) were given in concert form on Sunday nights. The reason for this is not apparent.

In addition to the regular season of the Metropolitan and Manhattan opera houses, New York had a two months' season of Italian opera in English by the Helen Noldi Opera Company (spring) and two other seasons of Italian opera in Italian by the Ivan Abramson Opera Company (spring and fall). The Aborn Opera Company, which gave grand opera in English in many of the larger cities in the East, was also heard in New York. In fact, New York had grand opera all the year round.

The unusual success of his New York season induced Mr. Hammerstein to erect a magnificent opera house in Philadelphia, which opened its first season on November 17. By the end of the year the artistic and financial success of the undertaking was assured. Boston had a brief operatic season by the Metropolitan forces, and a very successful one of lighter opera by the Castle Square Company. The great enthusiasm aroused the previous year by the San Carlo Company led several public spirited citizens to consider plans for establishing a permanent opera in Boston, with the result that a magnificent house is now in process of construction. The cities on the Pacific Coast enjoyed excellent operatic performances by the Lombardi Opera Company, a South American organization. New Orleans had a brilliant season by the San Carlo Company which included among its artists Nordica, Olitzka, Alice Nielsen, Jane Noria, Maurel and Constantino. Among the light operas Oscar Strauss' *A Waltz Dream* scored a phenomenal success.

FESTIVALS. The eighteenth annual Cincinnati May Festival (May 5-9) under the leadership of

Frank van der Stucken was not only a splendid artistic achievement, but also a financial success. Among the soloists were Gadski, Schumann-Heink, Rider-Kelsey, Janet Spencer, Herbert Witherspoon. Bach's *Passion According to Saint Matthew* was given without cuts. The double choruses were rendered by two complete choruses, and the chorales by a third full chorus. Pierné's *Children's Crusade* was sung by a choir of 700 children recruited from the public schools. In two matinées the Theodore Thomas Orchestra of Chicago, under its conductor Frederick Stock, performed among other numbers Brahms' *Third Symphony* and "The Dance of the Seven Veils" from Strauss' *Salome*.

The fifty-first Annual Music Festival at Worcester opened Sept. 30, with a fine performance of Saint-Saëns' *Samson and Delilah*, in concert form. It was rendered by a chorus of 400 and an orchestra of 60 under the direction of Arthur Mees. Elgar's *Caractacus* had to be repeated by request. Franz Kneisel directed the orchestral concerts, at which two novelties were produced: D'Indy's *Istar* (symphonic poem) and Chadwick's *A Vagrom Ballad*. Augusta Cottlow played MacDowell's *Second Concerto* in D minor.

The Maine Annual Festival took place at Bangor (Oct. 8th, 10th) and Portland (Oct. 12th, 14th) under the leadership of William R. Chapman. The third concert was devoted to excerpts from *Aida*. The programmes were rather too mixed to be called artistic. At the Albany May Festival Berlioz's *Damnation of Faust* and Parker's *Hora Novissima* were performed with the assistance of the Boston Festival Orchestra under Arthur Mees.

NOVELTIES. The most important orchestral novelty heard during the year was Gustav Mahler's *Second Symphony* (C minor). It was produced by the New York Symphony Society under the composer's personal direction (Dec. 8th). The work is one of enormous proportions, and demands an orchestra of 115 players, two solo vocalists, a chorus of 200, organ and a choir of brass instruments in the distance. The performance lasted almost an hour and a half. The composition was received with great enthusiasm, but this was due rather to the inspiring personality and superb conducting of the composer than to the intrinsic merit of the music. Without question, the symphony contains beautiful portions full of truly inspired music, but unfortunately also many commonplaces and too much empty rhetoric.

Carl Pohlig's symphonic poem *Per Aspera ad Astra* was heard by the Philadelphia Symphony Orchestra under the composer's direction. It proved a very melodious work splendidly orchestrated. The Boston Symphony Orchestra brought out under Dr. Muck's direction Bischoff's *Symphony in E*, Rimski-Korsakoff's *Spanish Caprice* and Max Reger's *Variations and Fugue on a Theme by Hiller*, a marvel of contrapuntal skill. The same orchestra under Max Fiedler played MacDowell's *Lamia*, a symphonic poem and one of the composer's earliest works, which did not add to his reputation.

In Chicago the Theodore Thomas Orchestra under Stock played Heinrich Noren's suite *Kaleidoscope*, op. 30, which created a deep impression. In the finale the composer renders homage to R. Strauss by employing two themes from the latter's *Heldenleben*. From the same orchestra was also heard Arne Oldberg's dra-

matic overture *Paolo and Francesca*, a splendid piece of orchestral mood painting.

The Symphony Society under Damrosch introduced also Sir Edward Elgar's *First Symphony*, which had caused such a stir in England. The work proved nothing very remarkable. Like everything of Elgar it showed a serious musician who is a thoroughly accomplished technician. But the musical content is rather insignificant. As a whole the work proved tedious.

The Kneisel Quartet introduced a new string quartet in F minor, op. 12, by Roffredo Caetani. It was splendid music, very passionate and distinctly modern. For operatic novelties see *Opera*.

EUROPEAN COUNTRIES.

GERMANY. ARTISTS. The two great pianists, Godowski and Busoni, created something of a sensation in Berlin, when within the same week they played all twenty-four Preludes of Chopin. The former played them in strict time, the latter rubato; yet both interpretations seemed absolutely convincing. Busoni also played an unpublished *Rhapsodie* of Liszt, the themes of which were later used in more effective form in the *Second*, *Sixth* and *Twelfth Rhapsodies*. At the Elite concerts in Berlin, Emil Sauer played with unparalleled success, evoking applause, such as old concert-goers declared had been witnessed only in Liszt's concerts. After an absence of several years Adele aus der Ohe appeared again in Berlin, and surprised her audience in the new rôle of composer. Her principal number was a well-written suite for piano in six movements. Carreño, as usual, electrified her audiences. Alexander Siloti was warmly welcomed after an absence of fifteen years. The French pianist Edouard Risler and the Russian Waldemar Lüttschg were as warmly received. Neither was able to fascinate his audiences, yet both won the admiration of musicians through their wonderful technic and unusual intellectual grasp of the works rendered. Of special interest was the appearance of Josef Wieniawski, a brother of the famous violinist, in a concert of his own works. While not remarkable as a composer he interested his audience by a performance of his piano concerto, which was a feat for a man of seventy-one. He showed himself in all respects a worthy representative of an older school. Among the violinists Achille Rivarde aroused unusual interest in Berlin, for that great artist had never been heard there. He resembles the great Sarasate (q. v.) in the elegant and finished style of his playing, and his success was phenomenal. To say that Ysaye everywhere evoked scenes of wildest enthusiasm is a matter of course. The same may be said of the performances of Kreisler, Petschnikoff and Marteau. The last named artist was signally honored when he was appointed Joachim's successor as head of the violin department at the *Königliche Hochschule für Musik*.

Willy Hess, the concert-master of the Boston Symphony Orchestra, was heard again after fifteen years with the Berlin Philharmonic Orchestra and warmly received. Bronislaw Huberman aroused great interest and enthusiasm by his novel idea of giving three concerts of violin concertos arranged according to schools: 1. German (Beethoven, Mendelssohn, Spohr). 2. French (Saint-Saëns, Lalo, Vieuxtemps). 3. Slavic (Tschaikowski, Dvofák, Wieniawski). Alessandro Certani gave a concert at which he played only unpublished compositions for violin

and piano by the old Italian sonatists Veracini, Vivaldi, Tartini, Martini, Alberti, Porpora. César Thomson's reception was of the most enthusiastic character and his playing absolutely disproved the rumors that had been circulated regarding his general decline. Scarcely had the Germans recovered from their surprise at the marvelous art of Mischa Elman, when another prodigy, fifteen-year-old Sascha Colbertson, proved his claim to mastery in Berlin and Leipzig. In conception and execution he was ranked among the greatest violinists, while his physical power of endurance seemed sheer inexhaustible. Among the 'cellists Jean Gérardy delighted vast audiences with his art. He confined himself to the established well known compositions for his instrument. On the other hand Anton Hekking, Jacques van Lier, Pablo Casals and his wife (formerly Senhora Suggia) did pioneer work for new compositions—a rather thankless task in this case.

Lilli Lehmann showed that at the age of sixty-two she is still one of the greatest of lieder singers. The recitals of Schumann-Heink, now an American citizen, were an uninterrupted succession of triumphs. Other great vocalists who charmed large audiences were Dr. Ludwig Wüllner, Carl Heinemann, Anton Sistermanns, Julie Culp, Tilly Koenen.

ORCHESTRAL CONCERTS. Besides the regular subscription concerts of the numerous orchestral organizations throughout the Empire an unusual number of special and private concerts were given. The sum total of the various programmes shows a splendid artistic balance, bearing testimony to the universality of taste on the part of concert-goers. The older masters were reverently cultivated, and every living master, of whatever nationality, was well represented. The only school distinctly discriminated against was the modern French. Little was heard of Debussy, D'Indy, Dukas, Charpentier. That this is not due to national prejudice is sufficiently proved by the frequent performances of works of older French masters like Berlioz, Gounod, Bizet, Saint-Saëns, Massenet. Russian composers found great favor in Germany. The interest in the "guest conductor" continued unabated, as is shown by the fact that famous conductors often gave concerts without the assistance of soloists.

The twenty-fifth anniversary of the death of Wagner was fittingly and universally observed. In his series of Gürzenich concerts at Cologne, Fritz Steinbach included three concerts, each devoted exclusively to the works of Beethoven, Brahms and Bruch. Léon Rinskopf, with his Ostend Symphony Orchestra, gave a concert in Berlin at which he performed only works by Belgian composers, Blockx, Gilson, Théophile Ysaye, Tinel. Dimitri Aichscharumoff and Michael Serbuloff conducted in Berlin concerts of Russian music, including several novelties. The Russian Balalaika Orchestra, consisting only of old Russian instruments (balalaika, domra, gussli), under its leader W. Andreeff, made a most successful tour. When Weingartner entered upon his duties as director of the Vienna Opera he broke his contract with the Berlin Royal Orchestra, whose remaining concerts were led by various conductors. In the fall Richard Strauss was appointed Weingartner's successor. The famous Kaim Orchestra of Munich was disbanded, but the players organized themselves as *Der Münchener Konzertverein* under the conductorship of Ferdinand Loewe.

At the head of the Berlin Philharmonic Orchestra R. Strauss made a five weeks' tour of France and Spain, which proved a tour of triumphs.

CHAMBER MUSIC. The Halir Quartet gave a series of concerts in which it played all of Beethoven's string quartets. The Flonzaley Quartet visited Berlin for the first time and made a profound impression, in spite of the complaint of Berlin critics that they were surfeited with string quartet organizations. Marteau and Dohnanyi made a tour of the principal cities, playing all of Beethoven's sonatas for piano and violin. Marteau also organized a new quartet which was criticised for lack of balance, as Marteau and Becker ('cello) stand far above the two other players. In spite, or perhaps because, of the general apathy to works of the modern French school, Carl Flesch undertook to make propaganda, and in a series of six concerts presented works by Fauré, Franck, Chausson, Pierné, Le Borne, Widor, Debussy, Ropaertz. Sergei Taneieff assisted the Bohemian String Quartet in a concert devoted to his works. His new string quartet in B flat made a deep impression, and was pronounced by critics the greatest work of its kind since Brahms.

OPERA. Among the most important events of the operatic world was the much-regretted resignation of Gustav Mahler from the directorship of the Vienna Opera. His successor, Felix Weingartner, began his career by practically undoing everything Mahler had accomplished. The number of performances of Wagner's works was greatly reduced, and not a single cycle of the Ring dramas was given. But he revived older works of a lighter character like Auber's *Fra Diavolo*, Lortzing's *Wildschütz*, Götz's *Taming of the Shrew*, Brüll's *Das goldene Kreuz*. While Mahler had always been averse to the ballet, Weingartner encourages it.

The St. Petersburg Opera gave a series of twenty performances of Russian operas at Kroll's Theater in Berlin. On this occasion Napravnik's *Dubrowsky* and Dargomyschky's *Russalka* were heard for the first time in Germany. The undertaking was not successful, either artistically or financially. Of the singers only Mmes. Kousnetzowa (soprano), and Sbrueva (contralto) and the tenor Bonatschisch were really great artists.

In Leipzig Verdi's *Otello*, which had not been heard there since 1892, was revived with great success. Düsseldorf heard Verdi's *Falstaff* for the first time and received it with wild enthusiasm. Strauss' *Salome* continued its triumphal tour and was given in fifty cities. At the Royal Opera in Berlin, Caruso and Schumann-Heink received ovations as had not been tendered to any singer since the days of Pauline Lucca (q. v.) At its Berlin première Puccini's *Bohème* met only with moderate success, while the same composer's *Manon Lescaut* was received with indifference. In spite of a splendid representation the Berlin première of Debussy's *Pelléas et Mélisande* failed to arouse interest. Subsequent performances proved flat failures. Yet, according to all reports, the scenic effects were wonderful. No curtain was used. The change of scene was effected while the stage was completely darkened. Thus every picture rose out of the darkness as if by magic. Another belated Berlin première was Leoncavallo's *Zaza*, which proved successful. At its première in Dresden Tchaikowski's *Engen Onégin* aroused a storm of enthusiasm. Leo Blech's *Versiegelt* met with great success in

Hamburg and Berlin. In Dresden Juan Manén's *Acté* made a deep impression.

NOVELTIES. Among the vast number of novelties preformed there is an unusual number of new works for 'cello, but nothing of permanent value. Among the concertos for piano, Xaver Scharwenka's *Fourth*, in F minor, scored an emphatic success. It is spontaneous, beautiful music. Max Reger's *Concerto for Violin*, op. 101, was played by Marteau at one of the Gewandhaus concerts in Leipzig. Both the public and musicians were completely bewildered by this ultra-modern work bristling with difficulties, whose performance required more than an hour. Of new symphonies Gustav Mahler's *Seventh* was well received, but, like most of his works, divided critical opinions. Kalinnikoff's *Symphony* in E minor and Buttykay's in C sharp minor attracted favorable notice for real musical content, classic form and masterly orchestration. A new *Trio*, op. 102, by the prolific Reger proved to be a really great work, especially in the Adagio.

ENGLAND. ARTISTS. Among the pianists heard were Godowsky, Dohnanyi, Mark Hambourg, Gabrilowitsch, Burmeister, Carrefio, Samaroff, Menter; among the violinists Ysaye, Sauret, Mischa Elman, Zimbalist, Hubay, Spalding. Adelina Patti drew a large audience at a charity concert, and showed that she still can sing if she chooses, as she did, only such works as are still within her range. Theodore Byard gave recitals, which included several songs by Franz, who is still, and very unjustly, neglected in England. In seven historical recitals Ernest Sharpe gave a splendid selection of songs from the sixteenth century to the present day. The last recital was devoted to works by American composers. Dr. Ludwig Wüllner's rare art aroused wild enthusiasm.

OPERA. The year opened with a two weeks' season of grand opera in English. A complete cycle of Wagner's Ring dramas, without cuts, was given under the direction of Hans Richter. Almost all the singers were natives of England. The success of the short season was most emphatic. The regular opera season began April 30th and lasted thirteen weeks. Among the artists were Tetrizzini, Melba, Destinn, Gulbranson, Maria Gay, Kirkby-Lunn, Bonci, Zenatello, Knoté, Cornelius, Scotti, Sammarco, Van Rooy. The conductors were Richter, Campanini and Panizza. German and Italian operas were given on alternate nights. The Moody-Manners Opera Company added Halévy's *Jewess* in English to their repertoire.

ORCHESTRAL CONCERTS. The concert season was a very busy one. Debussy conducted a concert of his own works with the Queen's Hall Orchestra, but made little impression. The great contra-bass virtuoso, Kussewitzky, appeared also as conductor and made an excellent impression as a Beethoven interpreter. Señor Arbos continued his propaganda for Spanish music; two of his concerts were devoted to works by Bretón. The Worshipful Company of Musicians performed works of English and French composers of the sixteenth, seventeenth and eighteenth centuries on old instruments. Under Nikisch the London Symphony Orchestra scored a succession of triumphs on a tour of the provinces. At the popular Promenade Concerts all of Beethoven's symphonies were heard in chronological order under the direction of Henry Wood. The famous Société des Concerts d'instruments Anciens appeared for the first time in England and met

with decided success. Many novelties by English composers were heard, but few made any impression. The performance of Elgar's *Faust Symphony* by Hans Richter in Manchester was regarded as a great event. The work had a most enthusiastic reception. Many critics hailed it as the dawn of a new era in English music.

FRANCE. OPERA. The new régime at the Grand Opéra under the double directorship of Messrs. Broussan and Messager did not fulfill the high expectations that had been entertained. Misunderstandings soon arose which ended in M. Messager's handing in his resignation. This, however, was not accepted. But it is feared that the difficulties have been arranged only temporarily. Wagner's *Götterdämmerung* had its first performance at the Grand Opéra on Oct. 16th. It was given without cuts under the direction of André Messager, and was an overwhelming success. Special significance was attached to the première of Mussorgsky's *Boris Godunoff* from the fact that it was the first work by a Russian composer given at the Opéra. Rameau's *Hypolyte et Aricie* was revived, but in spite of a superb representation it failed to draw. Caruso made his début in Paris in *Rigoletto*, and roused the audiences to frantic demonstrations. At the Opéra Comique several novelties were given of which only Rimsky-Korsakoff's *Snegourotschka* proved a great success. Marie Delna after a retirement of several years returned again to the scene of her former triumphs. She was welcomed as only Parisians can welcome old favorites. At the Théâtre Gaité Leoncavallo's *La Vie de Bohème* scored a success.

ORCHESTRAL CONCERTS. The Colonne Orchestra invited Richard Strauss to conduct a concert of his own works. The German master was greeted with the wildest enthusiasm. When he appeared a little later with the Berlin Philharmonic Orchestra the excitement ran so high that hundreds had to be turned away. Felix Mottl conducted a Wagner-Berlioz festival with the Lamoureux Orchestra. With the same orchestra André Messager made his début as a concert conductor, and was no less successful than at the opera. His success was so pronounced that after the death of Georges Marty (q. v.) he was elected conductor of the famous Conservatory Concerts. At the Théâtre Châtelet Colonne performed all of Beethoven's symphonies in chronological order. At the Salle Gaveau the violinist Sechiari appeared as conductor. He had an excellent orchestra and devoted his concerts chiefly to the production of novelties.

MYTHOLOGY, INDIAN. See ANTHROPOLOGY.

NATAL. A British colony in South Africa. Area 35,371 square miles. Population on Dec. 31st, 1907 (exclusive of military), 1,164,285, of whom 949,099 were natives, 115,807 Asiatics, 6,894 mixed, and 92,485 whites. Pietermaritzburg, the capital, had 31,199 inhabitants in 1904; Durban, the only port, 68,359 (29,802 Europeans, 19,183 natives, 17,256 Asiatics, 2,088 mixed) in 1907. There are primary schools for Europeans, natives and Asiatics, and two government high schools.

PRODUCTION. A Norwegian company, recently formed for exploiting the whaling grounds adjacent to the South African coast, particularly that of Natal, has established fishing stations at Durban and Port Shepstone. Whales were landed at Durban in July and August, 1908. The production of coal in 1907 was 1,530,043 tons,

valued at £690,391. The number of coal miners in 1907 was 7,699 (440 white, 4,095 natives, 3,164 East Indians). The number killed in the mines was 21, and injured 94, against 39 and 70, respectively, in 1906. The greater part of the coal is exported or sold to steamers. The gold production in 1907 was 878 ounces, valued at £3,730. The production of copper ore was 41 tons. Immense deposits of kaolin clay, estimated to contain millions of tons, have been found at Padley's Station. On the surface the deposit is more or less impregnated with iron, but lower down it is almost pure, and compares favorably with the French clays. Their exploitation has already begun. In August, 1908, it was decided to appoint a commission to inquire into ways and means for developing the mining industry, particularly as regards gold and other metals, and to prepare a revision of the mining laws so as to bring them into conformity with those of other South African colonies. The maize crop of 1908 was estimated at 186,000,000 pounds, or 6,000,000 less than in 1907. The production of sugar was 33,000 tons in 1906-07; 40,000 tons in 1907-08; and 45,000 tons in 1908-09. Of the 24,761 indentured East Indians in Natal, 7,131 were employed on sugar estates. A modern refinery has been established at South Coast Junction by a company recently organized. The area under tea was estimated in 1908 as 5,850 acres, and the output at 2,200,000 pounds. The production of cotton in 1907 was 19,186 pounds. The export of wattle bark, for tanning, is rapidly increasing; in 1907 it was 23,839 tons, valued at £136,873, against 14,756 tons, valued at £89,856, in 1906. According to the latest returns there were in the colony 524,712 woolled sheep owned by Europeans, besides 16,900 Persian sheep, and 37,000 other sheep. Of native sheep there were 200,000 owned by natives and 50,000 by Europeans. The export of wool through Durban in 1907 was 20,264,000 pounds, against 17,870,000 in 1906. The increase is due chiefly to the natural increase of the flocks, but partly also to the extension of railways in the Orange River Colony. The quantity of mohair exported through Durban in 1907 was 1,126,000 pounds, against 1,075,000 pounds in 1906. Recently established industries include a starch factory, a bacon factory, a woolen mill, and several new sugar mills.

COMMERCE AND COMMUNICATIONS. The imports in 1907 were valued at £8,704,222 (£3,709,670 from Great Britain), and the exports at £10,057,339 (£1,779,089 to Great Britain). Natal forms a part of the South African Customs Union. (See *BRITISH SOUTH AFRICA*.) At the end of 1906 there were 935 miles of railway, all owned by the government with the exception of 50 miles, constructed by a company but worked by the government. The cost of railway construction up to the end of 1906 was £13,892,969. In 1907 the gross revenue from railways was £1,843,000; and the working expenditure, £1,236,000. The length of telegraph line in 1906 was 1,944 miles.

GOVERNMENT, FINANCE, ETC. Natal has representative institutions and responsible government. The franchise is based on a property qualification. In 1908 the Governor was Sir Matthew Nathan; the Prime Minister, F. R. Moor. The revenue in 1906-07 was £3,471,932; the expenditure, £3,681,914; and the public debt on June 30, 1907, £20,760,992. At the end of 1907 the military force consisted of 1,006 mounted police, exclusive of native and Indian

constables; 2,739 militia, of whom 1,487 were mounted and 419 were in the artillery; 129 rifle associations with 6,567 members; 344 senior cadets, and 3,143 school cadets.

HISTORY. At the beginning of December, 1907, after many murders and outrages by the natives of Zululand, martial law was proclaimed and the colonial troops were mobilized. On the arrival of the troops at Nongoma the chief, Dinuzulu, was called upon to surrender (Dec. 6th) and he did so unconditionally on Dec. 10th. Contrary to the Governor's advice, martial law was maintained for some time after the troops were demobilized early in the year. The Governor made a tour of the country and announced the pardon of the rank and file of the rebels of 1906. Dinuzulu was taken to Durban for trial under the ordinary civil law. His counsel alleging improper action on the part of the Natal authorities appealed to the imperial government for the removal of Dinuzulu to England for trial. This and other requests were denied and he subsequently threw up his brief. There was some friction between the colonial and home authorities. The latter, after the Natal government had suspended Dinuzulu's salary, decided to pay it out of imperial funds in spite of the protests of the Natal ministers. Dinuzulu's trial was finally begun at Greytown in the latter part of October before three British commissioners. The increased participation of the natives in the government was the subject of much discussion. Among the changes proposed were the representation of natives in the Legislative Council, the formation of a Council of Native Affairs, the periodical assembling of natives to discuss their own affairs, the establishment of native settlements, and the granting to natives of an inalienable individual title to their allotments. The deficit of the previous year having brought the total net deficit to £519,000, a graduated income tax bill was adopted in September. It imposed a maximum rate of 5 per cent. on incomes over £1,000. For Natal's share in the movement for a United South Africa see *BRITISH SOUTH AFRICA*.

NATIONAL ACADEMY OF DESIGN. A society of artists which originated as the New York Drawing Association in 1825, and in the following year was reorganized under its present name. The object of the academy to further the arts of design is accomplished by the maintenance of schools. The schools are free to accepted students, the only limitation being that none but those intending to follow art as a profession are eligible. Annual prizes are offered for excellence in various lines of work in the schools. There are various prizes and medals awarded at the Annual and Winter Exhibitions of the Academy of Oils, Pastels and Sculpture. The National Academy of Design had a membership of 253 in 1908, made up of 137 academicians and 116 associates. President, Frederick Diehlmann; secretary, H. W. Watrous.

NATIONAL BANKS. CONDITION. The number of national banks on Sept. 23d, 1908, was 6,853, as against 6,625 in December, 1907, and 3,942 in December, 1900. The aggregate resources were \$9,027,260,000 in September, 1908, compared with \$8,407,988,000 in December, 1907. The principal items of resources in September, 1908, were: Loans and discounts, \$4,750,612,000; United States bonds to secure circulation, \$628,073,000; bonds and securities, \$799,884,000; due from

other banks \$491,395,000; due from approved reserve agents, \$711,948,000; cash on hand, \$889,213,000. The principal items of liabilities were: Capital stock, \$921,463,000; surplus and undivided profits, \$767,665,000; outstanding circulation, \$613,726,000 (does not include \$48,639,000 circulation secured by lawful money); due to other banks, \$1,903,989,000; individual deposits, \$4,548,135,000; United States deposits, \$114,378,000. Loans increased continuously during the year, after passing the year's minimum amount in February. The loans of September exceeded the maximum of 1907 by \$82,000,000. An analysis of the loans showed that 33.3 per cent. were time loans based on two-name commercial paper, 21.1 per cent. time loans based on stocks and bonds, 17.9 per cent. time loans based on single-name paper, 19.4 per cent. demand loans based on stocks and bonds, and 8.3 per cent. demand loans based on one- or two-name paper. Banks in New York loaned 19.06 per cent. of the total; banks in all three central reserve cities, 26.16 per cent.; banks in other reserve cities 25.93 per cent., and country banks 47.91 per cent. More than 41 per cent. of the New York City loans were demand loans secured by stocks and bonds. Of the bonds and securities held by national banks, two-thirds were railroad and other corporation bonds, 14 per cent. were State and municipal bonds, and 18 per cent. were judgments and claims. The total amount of these securities of the savings bank class was sufficient to make possible the issue of the entire amount of \$500,000,000 additional circulation authorized by the Act of May 30th, 1908. See CURRENCY.

The capital stock increased \$21,090,500 in the year ending in September, 1908. There were at that time 1,826 banks having \$25,000 capital, this being one-fourth the total number of national banks, but they had only 4.9 per cent. of the total capital. There were 2,116 banks, or 30.8 per cent. of all, with capital above \$25,000 but not above \$50,000, and they had 10.8 per cent. of the aggregate capital. Banks of the next class, those with capital not exceeding \$100,000, numbered 1,623, or 23.6 per cent. of all, and they had 16.3 per cent. of the total capital. Of banks with more than \$100,000 capital but not more than \$250,000 there were 757, or 11 per cent., having 15 per cent. of the capital. Banks of the class over \$250,000 to \$1,000,000 inclusive, numbered 476, or 6.9 per cent. of all, but they had 26.8 per cent. of all capital. There were 69 banks with capital between one and five millions and 6 with capital above five millions, these two classes having together 26 per cent. of the total.

The national bank note circulation was unusually large. The maximum attained on Dec. 1st, 1907, was exceeded every month during the year 1908. The amount outstanding on June 1 was \$698,449,517, the year's maximum, and an amount never before reached. The minimum for the year was \$665,844,900 on Nov. 1st. These items include not only circulation secured by United States bonds, but also that secured by lawful money, which on June 1 amounted to \$73,735,370. One effect of this large circulation was to flood the redemption office at Washington with notes. The issues during the year amounted to \$367,017,000, and the amount redeemed and destroyed \$310,398,000. The cost of redemption was 90 cents per \$1,000. Almost 60 per cent. of the redeemed notes came from New York City banks. Of the \$613,700,000 bond-secured circulation outstanding Sept. 23d, 64 per cent. was

issued by the country banks, 34 per cent. by all reserve city banks, 13.5 per cent. by the banks of the three central reserve cities, and 9 per cent. by New York banks. More than 42 per cent. of the circulation was in ten-dollar notes, 29 per cent. in twenties, 20 per cent. in fives, 2.6 per cent. in fifties, and 6 per cent. in one hundreds.

The amount of United States funds on deposit with national banks fell steadily from \$221,437,000 in February to \$111,802,000 in November.

The net earnings of national banks in the year ending June 30, 1908, were \$131,335,000. The dividends paid amounted to \$97,336,000, or 10.9 per cent. on the paid in capital, or 6.75 per cent. on the aggregate of capital and surplus. The amount of United States deposits in national banks dropped steadily from \$223,117,000 Dec. 3d, 1907, to \$170,700,000 in May, to \$118,576,000 in July, and to \$114,378,000 in September. The new currency law imposed 1 per cent. interest on the average monthly deposits of public money, but stipulated that no reserve need be kept against such deposits.

The number of national bank failures in 1908 was unusually large. (See FINANCIAL REVIEW, *Failures*.) Since the beginning of the national banking system 499 banks have been placed in the hands of receivers; there were 77 receiverships not yet ended in 1908. In this entire period the average loss to creditors in receiverships fully settled was 17.78 per cent. of the total liabilities, a loss of \$42,472,910, or .06 per cent. on average deposits in active national banks.

LEGISLATION. The act of May 30th, 1908, known as the Aldrich-Vreeland bill, provided a legal means of quickly expanding national bank circulation in times of money stringency. The provisions of that law are given in full under CURRENCY. The National Monetary Commission provided for by that act has under consideration several changes in national banking laws, some of which have been recommended by recent controllers of the currency. One of these is a change in the methods of appointing national bank examiners with a view to increasing their efficiency. Another is a change in the method of paying examiners by substituting salaries for the present fees. Other questions are the limitation of the amounts officers and directors of a bank may borrow from it; the advisability of allowing a bank to hold stock in other corporations, notably trust companies; and an increase in the powers of the Comptroller of the Currency. A change introduced by the Comptroller late in the year was the division of the country into "examiners' districts," and the provision for periodic meetings of the examiners of each district. See BANKS AND BANKING and FINANCIAL REVIEW.

NATIONAL CIVIC FEDERATION. An organization founded in 1900 in Chicago "to organize the best brains of the nation in an educational movement toward the solution of some of the great problems relating to social and industrial progress; to provide for study and discussion of questions of national import; to do this under the crystallization of the most enlightened public opinion; and when desirable, form legislation in accordance therewith." In the accomplishment of this purpose the Federation has been successful in uniting in the activities not only the leaders of thought, but leaders of action as well. Men prominent in the commercial and manufacturing life have worked in harmony with the leaders of labor organizations and out of this affiliation much good has come. The Federation

has done great service since its organization in the discussion of questions within its scope and in the arbitration of difficulties between capital and labor. Largely as the result of its immigration department, Congress was induced to provide an Immigration Commission, composed of six of its own members and three other persons, which has undertaken a large part of the work that had been planned by this Department of the Federation. The conciliation department of the Federation has for its chief purpose the prevention of strikes and labor difficulties by acting as a friendly counselor when called upon by the parties at issue. During 1908 a series of conferences was held on the invitation of one side or the other and disturbances which menaced industrial peace were averted. Allied with this movement was the impetus given to the trade agreement idea by the better and more permanent organization of this department. Trade agreement in its best form provides its own machinery for the adjustment of difficulties as they arise, and thus renders outside agencies in large measure unnecessary. Mr. John Mitchell is at the head of this department of the Federation.

Among the most important work undertaken by the Federation is included in its Welfare Department, the function of which is to promote welfare work among the employees of private enterprises and among those engaged in government service. Many large corporations and companies have shown much interest in this work. Out of this grew an interest in the government servant, which, based upon the maxim that the "government should be a model employer" led to the formation of a special committee to look after the interests of the public servant, whether employed by nation, State or city. Investigations along these lines were made during the year into conditions among the employees in the Panama Canal Zone, in the New York Post Office and in hospitals, asylums, etc., of both city and State, and the results show that these efforts will be amply repaid. During 1908 this work received fresh impetus by the formation of a Woman's Department, the underlying idea of which is, first, that as owners of industrial stocks, and through their husbands and relatives, women have an excellent opportunity to work for social betterment; and, second, that as concerns the labor of women and children, women naturally have a better understanding of needs of measures to relieve them than can be expected of men.

Out of the Conference on Trusts and Combinations held in the fall of 1907 grew a significant effort on the part of the Civic Federation to secure an amendment to the Sherman Anti-Trust law. After repeated conferences a bill was drawn up and later introduced in Congress, which was the subject of long and careful consideration before committees of the Senate and House of Representatives in March and April, 1908. While the bill got no further than the committees it served a useful purpose as means of presenting to Congress a consideration of the legal and economic questions involved in trusts and their regulation. See TRUSTS.

Under the auspices of the Industrial Economics Department, the Federation organized in 1908-09 a visit of American teachers to the schools of Europe, and especially of the United Kingdom. At the request of the organization, school boards throughout the country very generally granted leave of absence to teachers who desire to avail themselves of the opportunity.

The ninth annual meeting of the Federation was held in New York City, Dec. 14th and 15th. Among the questions discussed were: Industrial Insurance Here and Abroad, by Lee K. Frankel; Massachusetts Savings Bank Plan for Annuities, by Louis D. Brandeis, of Boston; Postal Savings Banks, by Marcus M. Marks, of New York; Insurance Fund of the Machinists' Union, by James O'Connell, of Washington, D. C.; Industrial Insurance by Private Companies, by Haley Fiske, of New York; Employees' Mutual Benefit Association of the Krupp Company, by Major A. E. Piorkowski, of Essen, Germany; Pension Funds of Individual Employers, by A. P. Loring, of Boston; The Burden of Compensation, by Hon. J. D. Beck, of Wisconsin; Shall Industry Bear the Cost of Industrial Accidents, by John Mitchell, of New York; The Labor Laws of Canada, by Hon. F. A. Acland, of Canada; Salary Loan Evils, by Frank H. Tucker; Employees' Association Lending Plan, by B. J. Greenhut, of New York; Employees' Savings and Loan Fund, by H. S. Dennison, of Boston.

At the dinner on Dec. 15th, those who spoke were Hon. W. H. Taft, Hon. Seth Low, Andrew Carnegie, August Belmont, M. E. Ingalls, A. B. Garretson, Samuel Gompers and John Mitchell. The officers of the Federation for 1909 are: President, Seth Low; Vice-Presidents, Samuel Gompers, Nahum J. Bachelder, Ellison A. Smyth, Benjamin I. Wheeler; Treasurer, Isaac N. Seligman; Chairman Executive Council, R. M. Easley; Secretary, D. L. Cease.

NATIONAL CONSERVATION COMMISSION. See FORESTRY.

NATIONAL MUSEUM, UNITED STATES. The National Museum was originated in the act of Congress of 1846 founding the Smithsonian Institution, and is the official custodian of the national collections. Its expenses are annually provided for through appropriations made by Congress. The Museum is especially rich in collections illustrating the natural history, geology, paleontology, archaeology and ethnology of America.

The collections of the National Gallery of Art were increased in 1908 through further accessions from Mr. William T. Evans, while other gifts of paintings were received from Mrs. James Lowndes and the friends of Max Weyl. A fine series of marine historical paintings by Edward Moran was received on deposit. A large number of various kinds of laces, embroideries, etc., have been sent to the Museum through the efforts of a committee of ladies.

Nearly 220,000 specimens were added to the Museum collections during the year. In ethnology the most important accessions consisted of a valuable assortment of objects collected from the natives of West Borneo by Dr. William L. Abbott, and of some very interesting material from the Philippine Islands, Guam and other islands of the South Pacific. Notable accessions in prehistoric archaeology were received from Mexico, Bolivia, Egypt and India, as well as from various parts of the United States. The flag made famous through the verses of Francis Scott Key as the "Star Spangled Banner," was lent by Mr. Eben Appleton, of New York City. Many interesting objects were added to the collections of the Colonial Dames of America and of the Daughters of the American Revolution.

Valuable accessions to the collections of birds and mammals were received from Sumatra and

Borneo through Dr. William L. Abbott, and from the Philippine Islands through Dr. Edgar A. Mearns, United States Army. The collection of insects was increased by about 53,000 specimens, including several contributions from European countries. Large collections of fishes from the Pacific Ocean and of mollusks from the Philippine Islands were obtained. The National Herbarium was enriched by about 25,000 specimens of plants, chiefly from North and Central America, and Mexico. To the paleontological collections were added several notable accessions, such as the celebrated Gustav Hambach collection, the Gilbert collection of Niagaran fossils, and a very large series of Cambrian fossils obtained in British Columbia and Idaho by the Secretary of the Smithsonian Institution, Charles D. Walcott. Many rare fossil reptiles and mammals were obtained from various horizons in the United States and South America.

NATIONAL RESOURCES, CONSERVATION OF. See AGRICULTURE; UNITED STATES; FORESTRY.

NATURAL GAS. The value of natural gas as reported by the U. S. Geological Survey was \$52,866,835 in 1907, as compared with \$46,873,932 in 1906. In 1908 reports from most of the gas producing fields indicated little change in conditions. In Kansas, where the consumption of natural gas is very large, during 1908 there was not only much new drilling, but also a considerable extension of the pipe line service through the State, and especially in Kansas City, so that by the end of the summer practically all of the city and suburbs was supplied with natural gas, which is used both for domestic purposes and for small factories, and even by some of the larger factories in summer. Gas is piped to all of the large cities of the State, as well as to many smaller towns, and during the year the supply pipes were extended to the Joplin zinc mining district. The Kansas Natural Gas Company was the largest consumer of gas, and according to official statements, its income in 1907 from the sale of natural gas slightly exceeded \$3,000,000, while in 1908 it was estimated to be about \$4,000,000. During the year large pumping plants were installed to insure an adequate supply of gas. There are other consumers, one of which the Wichita Gas Company supplies a number of salt, zinc and cement plants with fuel in addition to glass plants, brick plants, and other factories in addition to domestic and business consumption. In Oklahoma State laws and a decision of the Secretary of the Interior as regards leased Indian land prohibit the piping of gas out of the State, and as a result there have been developed no strong distributing companies, and it was the usual practice for each town to have its own pipe line. While there was little new development in the way of new gas fields, yet some drilling was done, and at the end of the year there was every indication that a much larger yield could be obtained from the State. In Texas gas wells of great volume were located in Clay County, and were being used to supply nearby cities, with probability of pipe lines being constructed to Dallas and Fort Worth.

NATURAL HISTORY. AMERICAN MUSEUM OF. An institution established in New York city in 1869 for maintaining a museum and library of natural history and advancing knowledge of kindred subjects. In 1907 "pay

days" were abolished and the Museum is now absolutely free daily. The year 1908 was the most notable in the history of the institution. The receipts were \$275,419, \$25,000 more than in 1907. This was largely the result of the bequest by Morris K. Jesup. The endowment fund, including the bequest of the late President Jesup, is \$2,048,156. Explorations are carried on in North America, in the United States, Canada, Alaska, Central America, West Indies, Asia, and in the Islands of the Pacific. The gross attendance at the Museum in 1908 was 1,043,582. This was in large part due to the exceptional interest in the Tuberculosis Exhibition (see TUBERCULOSIS). The attendance on public afternoon and evening lectures reached a total of 82,718. During the year 1909 the principal exhibitions which will be developed are the Children's Museum, the Museum for the Blind, the Philippine Exhibition, and the Congo Exhibition presented by King Leopold of Belgium. In 1908 the scientific staff of the Museum was strengthened by the addition of Professor Bashford Dean, a traveller and ichthyologist of international reputation. Professor Henry E. Crampton of Columbia University has been appointed Head Curator of the Department of invertebrate Zoology to succeed Professor W. Morton Wneeler, who resigned to accept a professorship in Harvard University. During the year valuable gifts were received from Mrs. Morris K. Jesup, Mrs. Armar D. Saunderson, Mr. George S. Bowdoin, Mr. Archer M. Huntington, Mr. Henry Booth, Dr. William Morton Wheeler, and others.

NAVAL PROGRESS. The accompanying table shows the comparative naval strength of the great powers of the world as reported on Nov. 1st, 1908, in an official document of the United States Senate. It indicates clearly the strength and condition of the navies of the various powers, and may be supplemented by a brief description of the advances made in the naval service generally during the year. These, in the main, have been closely connected with political questions in the various countries and the development of the navies has depended more on appropriations and budgets than on technical progress. The designs of battleships (q. v.) has been the most important subject of general discussion and the increase of navies by the largest war vessels ever constructed seems to be desirable in the opinion of most naval experts. Submarine boats and destroyers continued to be constructed and tested, especially in Europe, while guns of increased power were being provided for all navies, especially in the secondary batteries to repel torpedo attacks, as the range of these weapons had been increased materially during the previous few years. Typical of the naval progress of most of the leading powers was that of the United States, which may be summarized below. Under the heading *Navy* in the articles on the various countries will be found a discussion of the strength and development of their navies, together with an account of the more important events of the year.

In 1908 an appropriation was made by Congress for the establishment of a stronger naval base at Pearl Harbor, Hawaii, with coal sheds, and one graving dry dock to take the largest ships. This was to form an important naval base for the United States in the Pacific. The naval station at Olongapo was improved and developed, that at the Island of Guam dredged and

NUMBER AND DISPLACEMENT OF WAR SHIPS, BUILT AND BUILDING, OF 1,000 OR MORE TONS, AND OF TORPEDO CRAFT OF MORE THAN 50 TONS.

(Document No. 570, U. S. Senate, 1908. Comparative strength of the Great Powers, November 1st, 1908.)

[The following vessels are not included in the tables: Those over 20 years old, unless they have been reconstructed and rearmed since 1900; those not actually begun, though authorized; transports, colliers, repair ships, torpedo depot ships, converted merchant vessels or yachts; vessels of less than 1,000 tons, except torpedo craft; torpedo craft of less than 50 tons.]

	Great Britain		United States		Germany		France	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships (10,000 tons and over).....	58	867,200	29	406,146	28	354,031	24	337,520
Coast Defense Vessels.....	.....	.....	11	45,334	8	32,378	11	65,800
Armored Cruisers.....	38	468,350	12	157,445	10	113,893	23	220,982
Cruisers over 6,000 tons.....	18	176,250	5	43,800	.....	.....	3	24,409
Cruisers, 6,000 to 3,000 tons.....	45	197,780	20	72,620	26	104,035	13	52,549
Cruisers, 3,000 to 1,000 tons.....	25	53,505	14	18,058	17	37,626	10	20,540
Torpedo-boat Destroyers.....	167	76,991	31	17,590	85	42,917	72	26,674
Torpedo-boats.....	71	14,362	32	5,615	42	7,639	266	25,176
Submarines.....	60	16,738	19	3,860	6	1,080	94	27,538
Totals.....	482	1,871,176	173	770,468	222	693,599	516	801,188

	Japan		Russia		Italy		Austria	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships (10,000 tons and over).....	13	191,498	9	121,200	13	167,904	5	60,800
Coast Defense Vessels.....	3	18,786	4	21,380	.....	.....	6	41,700
Armored Cruisers.....	13	138,100	7	70,200	10	78,520	3	18,800
Cruisers over 6,000 tons.....	2	13,130	7	46,460	.....	.....	.....	.....
Cruisers, 6,000 to 3,000 tons.....	10	38,827	1	3,100	1	3,530	3	11,500
Cruisers, 3,000 to 1,000 tons.....	8	16,138	7	8,800	9	19,320	3	7,050
Torpedo-boat Destroyers.....	57	20,586	97	36,254	17	5,593	6	2,400
Torpedo-boats.....	63	6,312	57	6,834	61	9,054	35	4,500
Submarines.....	10	1,526	31	5,812	6	857	6	1,600
Totals.....	179	444,903	220	320,040	117	284,778	67	148,350

improved, while those at Cavite and Culebra were being improved. The training station on the Great Lakes also was being developed. Improvements were made in the fire control and a new system of instruments was fitted to eighteen battleships, including the Atlantic fleet and several cruisers. Improvements in fire control were also taking place in European navies during the year, as well in the various devices for cooling the magazines, a new system for which was installed on the battleship *Iowa*, and was to be extended to the United States battleships. In the 8-inch and 12-inch guns in service, which were not hooped to the muzzle, it was found necessary to replace them by guns of a later and stronger design. Originally designed for brown powder or for smokeless powder before the day of increased muzzle velocity and pressure, they were deemed inadequate for modern conditions of service. When withdrawn from service they were to be hooped to the muzzle, and after being relined, where necessary, were to be held as reserve guns. An important test took place on June 13th, when a torpedo attack was made on the monitor *Florida*, to determine the value of the specially constructed water-tight compartment. Previously a 12-inch gun test against the *Florida's* turret had been held on May 27th, and also an attack against the skeleton mast, which was considered to demonstrate the efficiency of this form of construction. The torpedo carried a charge of gun-cotton weighing 220 pounds, and was guided by a trolley wire so that it could not miss its mark. Striking just below the armored belt amidships, it went through the coal bunker into a water-tight compartment. The experiments with the *Florida* were all considered very successful and

added materially to the practical data of the navy department. Many problems were worked out during the cruise of the Atlantic fleet, which was considered successful from a technical, as well as a national, standpoint. This will be found discussed in the article UNITED STATES under *Navy*. See BATTLESHIPS; TORPEDOES.

NEBRASKA. One of the North Central Division of the United States. Its area is 77,530 square miles. The population, according to a Federal estimate made in 1908, was 1,069,214.

MINERAL PRODUCTION. The mineral resources of Nebraska are in course of development. There is one fairly good coal mine in operation, and a few others are projected. Two silica deposits are being worked and the indications are favorable for a heavy output in both, one being considered of such value that \$40,000 has been spent building a railroad line to it. Sand and gravel deposits are considered inexhaustible, and there is a considerable amount of good stone in sight. Clay for good brick is plentiful throughout the State, and the product is increasing in value each year. Boring for oil was in progress in several localities in 1908. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$1,383,916, as compared with a value in 1906 of \$2,053,100.

AGRICULTURE AND STOCK RAISING. The total area in acreage in Nebraska in 1908 showed a falling off of 2,178,773 acres, as compared with the figures for 1907. This was explained in part by the late and wet spring. Much of the bottom land that in normal years produced heavily was

in 1908 left unsown and a substantial percentage of such land that was sown later was lost by reason of continued floods. Washouts on hill-sides and sloping lands also accounted for a considerable part of this decreased acreage. The acreage of various cereals for 1908, with figures for 1907 in parentheses, was as follows: Corn, 6,339,019 (6,586,844); winter wheat, 2,342,508 (2,279,767); spring wheat, 203,102 (248,572); oats, 2,353,839 (2,494,946); barley, 95,758 (95,373); rye, 86,614 (87,913). Of potatoes there was an acreage in 1908 of 100,277, as compared with 87,900 in 1907, and 67,850 acres of sorghum cane, as compared with 70,017 in 1907. The number of orchard trees in 1908 is as follows, with the corresponding figures for 1907 in parentheses: Apples, 3,706,110 (3,546,859); pears, 108,436 (101,838); peaches, 1,988,011 (1,991,992); plums, 594,689 (636,889); cherries, 724,153 (706,209). The total acreage in the farms of the State in 1908 was 26,516,052, of which 12,562,746 acres were under cultivation. There were in the State in 1908 534,646 milch cows, and 1,688,936 other cattle; 2,073,812 hogs; 268,585 sheep, and 717,022 horses and mules. The production and value of the principal crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 205,767,000 bushels, valued at \$104,941,000; winter wheat, 40,317,000 bushels, valued at \$33,866,000; spring wheat, 3,978,000 bushels, valued at \$3,342,000; oats, 56,078,000 bushels, valued at \$22,922,000; barley, 2,773,000 bushels, valued at \$1,276,000; rye, 1,360,000 bushels, valued at \$816,000; buckwheat, 18,000 bushels, valued at \$15,000; flaxseed, 165,000 bushels, valued at \$185,000; potatoes, 7,098,000 bushels, valued at \$3,904,000; hay, 2,348,000 tons, valued at \$1,515,000. The value of the wool clip in 1908 was estimated at \$334,125.

MANUFACTURES. An attempt was made by the State Bureau of Labor and Industrial Statistics to obtain manufacturing statistics for 1907, but this was not entirely satisfactory. Reports received from 494 concerns, probably two-thirds of the total number in the State of any consequence, reported output to the value of \$152,000,000 in round numbers. The cost of raw material was \$81,416,998; the wage-earners numbered 14,000; the wages amounted to \$8,500,000; and the capital invested was \$43,569,675. The special census of 1905 showed 20,260 wage-earners engaged in factories with products valued at \$154,918,000, these two figures exceeding those of 1900 by 8.5 and 18.9 per cent., respectively. Of the wage-earners only 2,542 were women, and only 397 children under 16. Slaughtering and meat packing, centred at South Omaha, represented a value of \$69,243,400, or 2.5 per cent. less than in 1900. The State ranked third in this industry, being surpassed by Illinois and Kansas. Other principal industries, and their percentage gains over 1900, in parentheses, were: Flour and grist mill products, \$12,190,000 (56.4); printing and publishing, \$4,973,900 (44.9); railway repair-shop work, \$4,394,600 (67.5); and cheese and butter, \$3,326,100 (47.6). Of the total value of products, South Omaha produced \$67,415,000; Omaha, \$54,003,700, and Lincoln, \$5,222,600.

EDUCATION. The school population of the State (ages 5 to 21) was, in 1907, 372,648. The total enrollment was 277,166, and the average daily attendance 186,321. There were 6,783 school districts, and 6,784 school buildings, employing 10,059 teachers. Of the teachers 87 per

cent. were women. The average monthly salary of men teachers was \$66.01, and of women, \$46.16. The average length of school term was 141 days. In 330 districts the term was less than three months. The total expenditures for school purposes was \$5,759,222. A law of 1907 raised the standard for private and denominational schools permitted to grant certificates, and raised the minimum entrance requirements of State normal schools to two years of high school education. Other laws passed in the same year provided for four years of free high school opportunity for every child completing the elementary work, tuition to be paid by districts not having four-year high schools; for the establishment of a library in every school district; for normal training in high schools; for increase of junior normal schools from 5 to 8; for State aid to weak districts, \$50,000 being appropriated therefor. The aim of the last provision is to insure at least seven months of school in every district.

POLITICS AND GOVERNMENT. There was no session of the State legislature in Nebraska in 1908. The extension of the prohibition area in the State during the year was a notable feature of its political history. In the elections held on April 7th, local option made a gain of more than forty towns. There were elections in every city and town except Omaha, and in almost every one the sole issue was license or no license. A vigorous campaign had been carried on by the Prohibitionists, and the result was shown in the large vote which was cast in almost every place. In most cases the issue was determined by a referendum vote. The struggle in Lincoln was particularly strong. The Excise Board in that city had adopted stringent regulations, which were little short of actual prohibition. In spite of this, the prohibition people fought hard for complete "no license." They lost by a margin of 221 votes. An interesting decision was rendered by Attorney-General Thompson on Jan. 1st in connection with the attempt made by Governor Sheldon to turn over part of his salary to Lieutenant-Governor Hopewell for services rendered by the latter during the absence of the Governor from the State. The Attorney-General declared that inasmuch as the salary of the Lieutenant-Governor was fixed by law, and he was prohibited from accepting any other amount, Governor Sheldon must draw the full salary.

CONVENTIONS AND ELECTIONS. The Democratic State Convention for the selection of delegates to the National Convention met at Omaha on March 5th. The platform adopted by the convention had more than a local interest for the reason that it was generally considered that it was prepared under Mr. Bryan's special supervision, and that it represented the issues which he wished to make prominent during the presidential campaign. Among the measures advocated were the election of U. S. Senators by direct vote, postal savings banks, a currency plan that should include an emergency currency, issued and regulated by the federal government, an 8-hour day, and an employers' liability law. Revision of the tariff was demanded, and the right of Congress to exercise complete control over interstate commerce was asserted. The delegates chosen were instructed to vote for William J. Bryan for President. The Republican State Convention for the selection of delegates to the National Convention met at Omaha on March 12th. A platform strongly indorsing the admin-

istrations of President Roosevelt and Governor Sheldon was adopted, and the delegates chosen were pledged to vote for William H. Taft for President. The results of the election on April 7th are noted in the paragraph above. On Sept. 1st, the first primary election was held under the primary law of 1907. The chief interest was among the Democrats, as there was little opposition among the Republicans to the men then in office. The chief contestants for the Democratic nomination for Governor were James H. Dahlman, Mayor of Omaha, and Ashton C. Shallenberger. In spite of a large vote cast for Dahlman in Omaha, he was defeated, and Shallenberger became the Democratic nominee for Governor. The Republicans renominated Governor George S. Sheldon. In the election of Nov. 3d William J. Bryan received a plurality in the State over William H. Taft of about 5,000. Mr. Bryan had made a particularly aggressive canvass throughout the State, and it was probably largely due to his efforts that the Republican plurality of 1904 was turned to a plurality for the Democratic candidate in 1908. The Legislature is overwhelmingly Democratic. The vote of the State is as follows: Bryan, 131,099; Taft, 126,997; Chafin, 5,179; Debs, 3,524. For Governor, Shallenberger, 132,960; Sheldon, 121,076.

OTHER EVENTS. The State was visited by several windstorms and tornadoes in April and May. On April 23d a tornado swept over Cuming and Thurston counties, killing three persons and destroying a number of houses. A severe tornado swept over Platte River valley in the eastern part of the State on May 12th, causing great damage in a dozen towns. The town of Fort Crook was totally destroyed and Bellevue College, the Presbyterian University of the West, was left in ruins. At Louisville four persons were killed and the town was practically destroyed. On May 15th, the plant of the Omaha Packing Company, at Omaha, was burned, causing a loss of approximately \$400,000. The Cudahy Packing Company suffered a loss of about \$100,000.

STATE OFFICERS. Governor, A. C. Shallenberger, Dem.; Lieutenant-Governor, M. R. Hopewell; Secretary of State, George C. Junkin; Treasurer, L. J. Brian; Auditor, Silas A. Barton; Attorney-General, W. T. Thompson; Superintendent of Education, E. C. Bishop; Commissioner of Public Lands, E. B. Cowlds—all Republicans, except Shallenberger.

JUDICIARY. Supreme Court: Chief Justice, John B. Barnes; Justices, Chas. B. Letton, Jesse B. Root, Jacob Fawcett, William B. Rose, and M. B. Reese; Clerk, H. C. Lindsay—all Republicans.

The State Legislature of 1909 is composed of 13 Republicans and 20 Democrats in the Senate, 31 Republicans and 69 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section Congress.

NEBRASKA, UNIVERSITY OF. An institution of higher learning at Lincoln, Nebraska, founded in 1869. The attendance in 1907-8 was 3,237, distributed as follows: Literature, science, and arts, 1,050; agriculture, domestic science and mechanic arts, 1,197; music, 493; summer session, 258; law, 183; medicine, 127; fine arts, 101. Three new buildings for the School of Agriculture were finished during the year, a Woman's Building, the Stock Judging Pavilion and the Veterinary Building. The following new

departments of the University were created: Teachers' College and School of Pharmacy, the latter forming part of the College of Medicine. The office of Director of University Extension was created to go into effect Jan. 1st, 1909. The endowment of the University approximates \$1,500,000, and the annual income \$625,000, chiefly from the State. The Library contains 80,000 volumes. On Nov. 6th, 1908, Dr. E. Benjamin Andrews resigned the Chancellorship of the University on account of ill health. He terminated eight years of service on Jan. 1st, 1909. The Regents on Dec. 8th elected Dr. Samuel Avery, head professor of chemistry, to be acting Chancellor.

NECROLOGY. The following list comprises the names of persons who died in the year 1908. An asterisk denotes that an obituary of the person appears as a separate article in its alphabetical order:

*Abbott, Edward. American clergyman and author.

Ackley, Seth M. American rear-admiral. Died, Jan. 7th.

*Adler, Friedrich. German architect and writer.

*Aiken, William Martin. American architect.

*Alden, William Livingston. American author and journalist.

*Alexis, Alexandrovitch. Grand Duke of Russia.

*Allen, Alexander Virts Griswold. American Episcopalian minister and theological writer.

*Allison, William Boyd. United States Senator.

*Amicis, Edmondo de. Italian writer.

Anderson, Sir Thomas McCall. Scotch dermatologist. Died, Jan. 25th; born, 1836.

*Anthony, William Arnold. American physician.

Apgar, Austin Craig. American educator. Died, March 4th; born, 1838.

*Armijo, Don Antonio Aguilar. Spanish statesman.

Astor, Mrs. Wm. Died, Oct. 30th; born 1853.

Augur, Ammon A. Lieutenant-colonel, U. S. A. Died, June 25th; born, 1852.

*Ayrton, William E. English physician and electrical engineer.

*Backus, Truman Jay. American educator.

Bailey, Elisha Ingram. Brigadier-general, U. S. A. Died, March 25th; born, 1824.

*Balch, George Beall. Rear-admiral, U. S. N. Ball, Alonzo Brayton. American physician. Died, Oct. 25th; born, 1840.

*Banks, Sir John. Irish physician.

*Barbier de Meynard, Charles Adrien Casimir. French Orientalist.

Barine, Arvéde (Mme. Charles Vincens). French writer. Died, Nov. 15th; born, 1840.

Barnes, Robert S. F. English gynecologist. Died, Feb. 19th; born, 1849.

*Batcheller, George Sherman. American jurist and diplomat.

*Bates, Joshua H. American soldier.

Bechamp, Pierre Jacques Antoine. French chemist; died, April 15th; born, 1816.

*Becquerel, Henri. French physicist.

*Beevor, Charles Edward. English neurologist. Bell, James. English chemist. Died, March 31st; born, 1825.

*Belmont, Oliver Hazard Perry. American banker.

Bergne, Sir Henry (John Henry Gibbs). English copyright authority. Died, Nov. 15th; born, 1842.

*Bethune, Thomas G. (Blind Tom). Negro pianist.

Bigg, Charles. English clergyman and scholar. Died, July 15th; born, 1840.

*Bikelas, Dimitrios. Greek poet.

*Bird, Frederic Mayer. American hymnologist.

Bird, Henry Edward. English chess expert. Died, April 14th; born, 1830.

Blakeslee, Erastus. American clergyman. Died, July 12th; born, 1838.

*Blaydes, Frederick Henry M. English classical scholar.

*Blind Tom. See Bethune, Thos. G.

*Blumenthal, Jacques, German-English pianist.

Blythwood, Archibald Campbell Lord. Died, July 8th; born, 1837.

*Boissier, Marie Louis Gaston. French writer and educator.

*Bonner, Hugh. Fire official.

Borthwick, Sir Algernon, Lord Glenesk. English journalist. Died, Nov. 24th; born, 1830.

*Bourne, Edward Gaylord. American historian.

Bradley (Mrs.) Lydia Moss. American philanthropist. Died, Jan. 16th; born, 1816.

Brick, Abraham Lincoln. American legislator. Died, April 7th; born, 1860.

*Bromfield, Edward Thomas. American clergyman.

*Brooks, William Keith, American zoölogist.

Brough, Bennett H. English steel manufacturer. Died, Oct. 3d; born, 1860.

Brown (Miss) Meredith. English philanthropist. Died, Nov. 5th.

*Bruce, Sir George Barclay. English engineer.

Bruce, Robert. English Congregational clergyman. Died, Nov. 6th; born, 1829.

*Bryan, William James. United States Senator.

*Buller, Sir Henry Redvers. British soldier.

Burdge, Franklin. American lawyer. Died, Sept. 19th; born, 1835.

Burtis, Arthur. Rear-admiral (retired), U. S. N. Died, Oct. 22d; born, 1841.

*Busch, Wilhelm. German caricaturist.

*Caird, Edward. English educator.

*Campbell, Lewis. Scotch Greek scholar.

*Campbell-Bannerman, Sir Henry. English statesman.

*Canet, Gustave. French artilleryist.

*Canning, Sir Samuel. English electrical engineer.

*Capers, Ellison. American Protestant Episcopal bishop.

*Carlos I., King of Portugal.

*Carmack, Edward Ward. American politician.

*Carney, William H. American Civil War veteran.

Caron, Sir Adolphe. Canadian ex-Minister of Militia, Postmaster General, etc. Died, April 20th; born, 1843.

Carroll, Henry. Brigadier-general, U. S. A. Died, Feb. 12th; born, 1838.

Casali del Drago, Cardinal. Died, March 17th; born, 1838.

Casanas y Pageo, Salvatore, Cardinal. Died, Oct. 27th; born, 1834.

Cassie, William Raich. English physicist. Died, June 22d; born, 1861.

*Cavendish, Spencer Compton. Eighth Duke of Devonshire. See Devonshire, Spencer Compton Cavendish, Eighth Duke of.

*Chadwick, Henry. "Father of Baseball."

*Chamberlain, Jacob. American missionary. Chamberland, Charles Edouard. French physician. Died, May 3d; born, 1851.

*Charteris, Archibald H. Scotch clergyman.

Chase, George Lewis. American underwriter. Died, Jan. 7th; born, 1828.

Chaulnes, Emanuel Theodore Bernard Marie D'Albert de Luynes d'Ailly, Ninth Duke of. Died, April 24th; born, 1878.

Cheetham, Samuel. Archdeacon of Rochester, England. Died, July 19th; born, 1827.

Chelsea, Henry Arthur Cadogan, Viscount. English statesman. Died, July 2d; born, 1868.

*Clarke, Benjamin F. American educator.

Clarke, George W. American educator. Died, Sept. 15th; born, 1817.

*Cleveland, Grover. Twenty-second and twenty-fourth President of the United States.

*Clous, John Walter. American soldier.

Coburn, John. Ex-Congressman from Indiana. Died, Jan. 28th; born, 1825.

*Coghlan, Joseph Bullock. American naval officer.

*Cogswell, James Kelsey. American naval officer.

*Collins, John Churton. English educator.

Colbin, Sir Auckland. English colonial official. Died, March 24th; born, 1838.

*Cooper, Sir Alfred. English surgeon.

*Coppee, François. French poet.

Corliss, Augustus Whittemore. Brigadier-general (retired), U. S. A. Died Sept. 4th; born, 1837.

Cremer, Sir William Randal. English diplomatist. Died July 22d; born, 1838.

*Crowninshield, Arent Schuyler. Rear-admiral, U. S. N.

*Culbertson, James Coe. American physician.

*Cullingworth, Charles James. English physician.

*Curtis, Alfred Allen. American Roman Catholic bishop.

*Cutcheon, Byron M. American soldier and politician.

Cutting, Frederick L. American insurance commissioner. Died, Jan. 8th; born, 1842.

*Dailey, Peter F. American comedian.

*Daniels, George Henry. American railroad official.

*Davis, Charles Abbott. American naturalist.

Day, Sir John. English jurist. Died, June 13th; born, 1826.

Day, Martin C. American journalist. Died, June 1st; born, 1853.

Deane, Sir Harold. English soldier. Died, July 6th; born, 1854.

Dennett, Alfred W. American restaurateur. Died, Jan. 23d; born, 1836.

*Derby, Frederick Arthur Stanley, Sixteenth Earl of. See Stanley.

Derenbourg, Hartwig. French Orientalist. Died, April 12th; born, 1844.

*Devonshire, Spencer Compton Cavendish, Eighth Duke of.

Devyema, pseudonym of the Polish poet Hedwig Luszoziwska (q. v.).

*De Witt, Calvin. American soldier.

*Dix, Morgan. American Protestant Episcopal clergyman.

*Dodge, Francis Safford. American soldier.

*Drachmann, Holger H. H. Danish poet.

*Drury-Lowe, Sir Drury Curzon. British soldier.

Duncan, William Wallace. American Methodist Episcopal bishop. Died, March 2d; born, 1839.

Duro, Capt. Cesareo Fernandez. Spanish naval author. Died, June 5th; born, 1830.

*Dyas, Ada. Irish actress.

*Dyer, Louis. American educator.

*Edelbohls, George Michael. American physician.

Edgren, John Alexis. Swedish-American clergyman. Died, Jan. 26th; born, 1839.

*Edouin, Willie. English actor.

Eidlitz, Leopold. American architect. Died, March 22d; born, 1823.

Eliot, Sir John. English meteorologist. Died, March 18th; born, 1839.

Ellery, Robert Lewis John. English meteorologist. Died, Jan. 14th; born, 1827.

Elmendorf, Joachim. American Reformed Church clergyman. Died, July 18th; born, 1827.

*Emerson, Edwin. American clergyman.

*Erichsen, Mylius. Danish explorer.

*Esmarch, Johanne Friedrich A. von. German surgeon.

*Evans, Sir John. English antiquary.

*Ewald, Carl. Danish novelist.

*Falk, Max. Hungarian journalist.

Fanlamb, James Remington. American composer. Died, March 26th; born, 1838.

*Farren, William. English actor.

*Fausöll, Michael Viggo. Danish Oriental scholar.

Fawcett, William Milner. English architect. Died, Dec. 27th; born, 1832.

Felsenthal, Bernhard. Chicago rabbi. Died, Jan. 12th; born, 1822.

*Fenollosa, Ernest Francisco. American educator.

*Ferdinand IV., Archduke, Grand Duke of Tuscany.

*Fergusson, Arthur Walsh. Ex-secretary Philippine Commission.

Fessenden, Samuel. Ex-United States Senator from Connecticut. Died, Jan. 17th; born, 1847.

Févier, Louis François. French soldier. Died, Dec. 25th; born, 1828.

*Fithian, Edward. Chief engineer, U. S. N.

Fitzgerald, Louis. American soldier and underwriter. Died, Oct. 10th; born, 1838.

Fitzgerald, Sir Thomas. Australian surgeon. Died, July 9th; born, 1838.

*Fletcher, James. English-Canadian botanist.

*Fowler, Charles Henry. American clergyman.

*Fréchette, Louis Honoré. French-Canadian poet.

*Freer, Frederick Warren. American painter.

Fulleylove, John. English painter. Died, May 24th; born, 1847.

Gardiner, Edward G. American marine biologist. Died, Nov. 4th; born, 1854.

Garrett, Patrick F. Captain, Texas Rangers. Died, March.

*Gaudry, Jean Albert. French paleontologist.

*Gebhart, Emil. French writer.

*Gevaert, François Auguste. Belgian composer.

*Gibbs (Oliver) Wolcott. American scientist.

*Gilman, Daniel Coit. American educator.

*Glass, Henry. American naval officer.

Goss, Elbridge Henry. American author and banker. Died, Oct. 9th; born, 1830.

Greenough, John James. American inventor. Died, Aug. 25th; born, 1812.

Hague, James Duncan. American mining engineer. Died, Aug. 3d; born, 1836.

*Halderman, John A. American soldier and diplomat.

*Halévy, Ludovic. French dramatist.

*Hall, Charles Cuthbert. American theologian.

*Halstead, Murat. American journalist.

Hamilton, Andrew. American lawyer.

*Hamy, Theodore Jules Ernest. French anthropologist.

*Hanlon, Edward. Canadian oarsman.

Hansky, Alexander. Russian solar physicist. Died, Aug. 11th.

Hardy de Péroni, General. French soldier and author. Died, July 2d; born, 1843.

*Harrington, Charles. American educator.

*Harris, Joel Chandler. American author.

Haskell, Harry Leland. Brigadier-general (retired), U. S. A. Died, Oct. 25th; born, 1840.

Haven, George Griswold. American banker. Died, March 18th; born, 1837.

*Headlam, Walter G. English Greek scholar.

Heath, Daniel Collamore. American publisher. Died, Jan. 28th; born, 1843.

*Hebert, Antoine A. E. French historical painter.

*Hibbert, Sir John Tomlinson. British politician.

*Hiscox, Gardner Dexter. American engineer.

Hoffa, Albert. Berlin orthopedist.

Holland, Frederic May. American author. Died, May 17th; born, 1836.

*Hopkins, Henry. American educator.

*Horstman, Ignatius Frederick. American Roman Catholic bishop.

*Hosley, Harry Hibbard. American naval officer.

*Hosmer, Harriet Goodhue. American sculptor.

*Hough, Alfred Lacey. American soldier.

Hourbron, Frederic. Secretary (French) National Society of Beaux-Arts. Died, Oct. 19th; born, 1851.

*Howard (George) Bronson. American playwright.

*Howard, Joseph, Jr. American journalist.

Howitt, Alfred William. English scientist. Died, March 8th; born, 1830.

*Hubschmann, Johannes Heinrich. German philologist.

*Hunton, Eppa. American Confederate soldier.

*Hutchinson, John W. American singer.

Ibbetson, Sir Denzil. English colonial official. Died, Feb. 21st; born, 1847.

*Ignatieff, Nicholas. Russian diplomat.

*Ingalls, Charles Russell. American jurist.

*Inouye, General. Japanese soldier.

*Iwoski, Yanosuke. Japanese financier.

*Jackson, Henry. American soldier.

Jacquer, Achille. French engraver. Died, Oct. 30th; born, 1846.

*Janssen, Peter. German historical painter.

Jelf, George Edward. English educator. Died, Nov. 19th; born, 1834.

Jenks, George Augustus. American lawyer, ex-Assistant Secretary of the Interior. Died, Feb. 10th; born, 1836.

*Jesup, Morris Ketchum. American banker and philanthropist.

Johnson, David. American painter. Died, Feb. 4th; born, 1827.

*Joly de Lotbinière, Sir Henry Gustave, Canadian statesman.

*Jones, James Kimbrough. American politician.
 Kane, Theodore F. Rear-admiral, U. S. N. Died, March 14th; born, 1840.
 Karsten, Gustaf E. American educator; Died, Jan. 28th; born, 1859.
 *Karsten, Hermann. German naturalist.
 *Kaufmann, Richard von. German economist.
 Kellerman, William Ashbrook. American botanist. Died, March 8th; born, 1850.
 *Kielhorn, Lorenz Franz. German Sanskrit scholar.
 Killam, Albert Clements. Canadian jurist. Died, Feb. 28th; born, 1849.
 King, Tom C. American metallurgist. Died, Feb. 27th; born, 1865.
 *Kingston, Charles Cameron. Australian statesman.
 Kline, Jacob, Brigadier-General, U. S. A. Died, March 23d; born, 1840.
 Knaggs, H. G. English entomologist. Died, Jan. 16th; born, 1832.
 *Knapp, William Ireland. American educator.
 *Knowles, Sir James. English editor.
 *Kretschmer, Edmund. German composer.
 *Kwang-Hsu. Emperor of China.
 Lafont, Rev. Father Eugene. English educator in India. Died, May 10th; born, 1837.
 Laidlaw, Alexander Hamilton. American homeopathic physician. Died, July 29th; born, 1828.
 Lambeaux, Josef. Belgian sculptor. Died, June 6th; born, 1852.
 *Landelle, Charles. French painter.
 Lanham, Samuel Willis Tucker. Ex-Governor of Texas. Died, July 29th; born, 1846.
 Lapparent, Albert A. C. French geologist.
 L'Arronge, Adolf. German dramatist.
 *Latimer, Asbury Churchill. American legislator.
 Lavino, William. Paris correspondent, *London Times*. Died, Aug. 4th; born, 1846.
 Law, Sir Edward FitzGerald. English diplomatist. Died, Nov. 1st; born, 1846.
 Lawler, Thomas G. Ex-Commander-in-Chief, G. A. R. Died, Feb. 3d; born, 1844.
 Layng, James D. American railroad official. Died, Feb. 12th; born, 1833.
 *Lecot, Victor Lucien Sulpice, Cardinal.
 *Lee, Leslie Alexander. American biologist.
 *Lee, Stephen Dill. American Confederate general.
 *Le Plongeon, Augustus. American archæologist.
 Lessing, Julius. German art collector. Died, March 14th; born, 1843.
 Leval, Jules L. French soldier. Died, Jan. 23d; born, 1823.
 Levyson, Arthur. German editor. Died, April 11th; born, 1841.
 Leydet, Victor. Vice-president, French Senate. Died, Oct. 23d; born, 1845.
 *Leydig, Franz von. German zoölogist.
 *Lie, Jonas Lauritz Edemil. Norwegian novelist.
 *Liebreich, Oskar. German pharmacologist.
 *Linevitch, Nicolai P. Russian general.
 Linlithgow, Sir John Adrian Louis Hope. English public official. Died, March 1st; born, 1860.
 Lister, Arthur. English biologist. Died, July 18th; born, 1830.
 Livesay, Sir George. English gas manufacturer. Died, Oct. 4th; born, 1834.
 Loe, Walter von. German field marshal. Died, July 6th; born, 1828.

*Loud, Eugene F. American politician.
 Löwy, Albert. Jewish writer and philologist. Died, May 21st; born, 1816.
 Lucanus, Friedrich Karl Herman von. Chief of Emperor William's Civil Cabinet. Died, Aug. 2d; born, 1831.
 *Lucca, Pauline. German soprano.
 *Luehaire, André. French historian.
 Lusozowska, Hedwig. Polish poet. (Pseudonym, Devyma). Died, Sept. 23d; born, 1848.
 *Lyne, Joseph Leycester (Father Ignatius). English missionary.
 *McCosh, Andrew J. American surgeon.
 McCrea, Henry, Captain, U. S. N. Died, July 19; born, 1851.
 *MacDonald, James, W. A. American sculptor.
 Macdonald, Sir John Denis. British microscopist. Died, February 7; born, 1826.
 *MacDowell, Edward Alexander. American composer and pianist.
 McElmell, Jackson. Chief engineer and rear-admiral (retired) U. S. N. Died, May 31; born, 1834.
 *McGillicuddy, Daniel F. American Roman Catholic clergyman.
 *McGlashan, Peter A. S. American Confederate General.
 *Mackay, Donald Sage. American clergyman.
 Maclay, Isaac Walker. American soldier and civil engineer. Died, December 29; born, 1841.
 *Maignan, Albert. French painter.
 *Malet, Sir Edward Baldwin. British diplomatist.
 *Marchesi, Salvatore, Cavaliere de Castrone. Italian baritone.
 *Marty, Georges. French composer.
 *Mascart, Eleuthère E. N. French physicist.
 *Mason, Otis Tufton. American ethnologist.
 *Mason, William. American pianist.
 *Mathew, Sir James Charles. British jurist.
 Mathieu, François Désiré. French Cardinal. Died, October 26.
 Medd, Peter Goldsmith. English clergyman and author. Died, July 25; born, 1829.
 Meline, James Florant. Ex-Assistant Treasurer of the United States. Died, July 23; born, 1841.
 Mellon, Thomas. American jurist. Died, February 3; born, 1813.
 *Menocal, Aniceto Garcia. American civil engineer.
 *Merriam, Greenleaf A. American naval officer.
 *Merrill, George Edmonds. American educator.
 *Meserole, Jeremiah Vanderbilt. American brigadier-general.
 Meyer, Adolph. American Confederate soldier and Congressman. Died, March 8; born, 1842.
 *Mitchell, Donald Grant (Ik Marvel). American essayist.
 Mixer, Albert Harrison. American educator. Died, February 7; born, 1822.
 *Möbius, Karl August. German zoölogist.
 Moffett, Samuel Erasmus. American magazine writer. Died, August 1; born, 1860.
 Montague, William Lewis. American educator. Died, July 27; born, 1831.
 Morosini, Giovanni P. Italian-American banker. Died, September 15; born, 1832.
 Morris, Tom. Scotch golfer. Died, May 24; born, 1821.
 *Moulton, (Mrs.) Louise Chandler. American author.

Munzig, George Chickering. American portrait painter. Died, March 5; born, 1859.

*Muravieff, Nicholas Vladimir. Russian statesman.

*Nelson, Henry Loomis. American journalist.

Nicholson, George. English botanist. Died, September 20; born, 1847.

Nocella, Carlo. Italian Cardinal. Died, July 22.

*Nodzu, Michitsura. Japanese general.

Noel, York. Commander, U. S. N. Died, April 23; born, 1854.

*Norton, Charles Eliot. American scholar.

Novello, Clara Anastasia, Countess Gigliucci. English singer. Died, March 16; born, 1818.

*Noyes, Crosby Stewart. American journalist.

O'Connor, Joseph. American journalist. Died, October 10; born, 1841.

*O'Connor, Sir Nicholas Roderick. English diplomat.

Oppert, Gustav. German Orientalist. Died, March 17; born, 1836.

Ordranax, John. American lawyer. Died, January 20; born, 1830.

*Ouida, Pseudonym of Louise de la Ramée (q. v.).

*Palma, Tomas Estrada. First President of Cuba.

*Parsons, Frank. American educator.

*Pastor, Antonio. American theatrical manager.

*Paulsen, Friedrich. German philosopher.

Penrose, Richard Alexander Fullerton. American physician. Died, December 26; born, 1827.

*Pernter, Josef Maria. Austrian meteorologist.

Peron, Alphonse. French geologist. Died, July 2; born, 1834.

Perrine, Frederic Auten Combs. American electrical engineer. Died, October 20; born, 1862.

*Perry, David. American soldier.

Pettibone, George. American labor leader. Died, August 3.

*Pettigrew, James Bell. English physiologist.

*Pfeiderer, Otto. German Protestant theologian.

Phelps, Charles Edward. American soldier and lawyer. Died, December 27; born, 1833.

*Pischel, Richard. German Sanskrit scholar.

Pitman, Sir Henry Alfred. English physician. Died, Nov. 6; born, 1808.

*Plener, Ignaz von. Austrian statesman.

Pope, George U. English Tamil scholar. Died, February 11; born, 1820.

*Porter, Benjamin Curtis. American painter.

Potter, Henry Codman. American Protestant Episcopal clergyman.

*Prinetti, Giulio. Italian statesman.

*Proctor, Redfield. American statesman.

Quinby, William Emory. Editor and chief owner, *Detroit Free Press*. Died, June 7; born, 1835.

*Rea, Charles Whiteside. American naval officer.

*Ramée, Louise de la (Ouida). English novelist.

*Randall, James Ryder. American journalist and poet.

*Rane, Arthur. French politician.

Reed, Edwin. American author. Died, October 16; born, 1835.

*Reid, Sir Robert. Newfoundland railroad contractor.

*Richard, François Marie Benjamin. French Cardinal.

*Rimsky-Korsakoff, Nicholas Andrejvitch. Russian composer.

*Rindfleisch, Georg Eduard von. German pathologist.

Rishell, Charles Wesley. American theologian. Died, September 21; born, 1850.

*Roche, James Jeffrey. American journalist.

*Rockwell, Charles Henry. American naval officer.

*Roehrig, Louis Otto. American philologist.

*Roosa, Daniel Bennett St. John. American physician.

*Rosse, Sir Lawrence Parsons, Lord. English scientist.

Rouxel, Gustave Augustin. Auxiliary Roman Catholic Bishop of New Orleans. Died, March 17; born, 1849.

*Rowell, George Presbury. American publisher.

*Rudini, Antonio Starabba, Marquis di. Italian statesman.

Russell, Alexander Wilson. Rear-Admiral (retired) U. S. N. Died, November 26; born, 1824.

*Sackville-West, Sir Lionel. English diplomatist.

Salmeron, Nicolas. Spanish statesman. Died, August 21; born, 1838.

*Samuels, Samuel. American sea captain.

Sankey, Ira David. American evangelist.

*Sarasate y Navascues, Pablo M. M. Spanish violinist.

*Sardou, Victorien. French dramatist.

*Sargent, Frank P. American labor leader.

*Satterlee, Henry Yates. American Protestant Episcopal bishop.

*Satterlee, Walter. American painter.

Sawyer, Charles Henry. Ex-Governor of New Hampshire. Died, January 18; born, 1840.

*Saxton, Rufus. American soldier.

Schelling, Hermann von. Ex-Prussian Minister of Justice. Died, November 16; born, 1824.

*Schrader, Eberhard. German Orientalist.

*Schrotter, Leopold von Kristelli. Austrian laryngologist.

*Selfridge, Thomas E. American soldier.

*Senn, Nicholas. American physician.

Shipley, Samuel R. American life underwriter. Died, May 23; born, 1828.

Shipman, William Rollin. American educator. Died, January 15; born, 1836.

*Shuvaloff, Paul, Count. Russian soldier and diplomat.

*Smith, Charles Emory. American journalist.

Smith, Orlando Jay. American journalist. Died, November 20; born, 1842.

*Smith, Walter Chalmers. Scotch poet.

*Snow, Francis Huntington. American educator.

Sorby, Henry Clifton. English scientist. Died, March 9; born, 1826.

*Spofford, Ainsworth Rand. American librarian.

*Spreckels, Claus. American sugar maker.

*Stanley, Frederick Arthur, 16th Earl of Derby. English statesman.

Stedman, Arthur. American editor. Died, September 16; born, 1859.

*Stedman, Edmund Clarence. American poet and critic.

*Sternburg, Herman Speck von, Baron. German diplomatist.

*Stevens, Durham White. Diplomatic adviser to Korea.
 *Stevens, Francis B. American civil engineer.
 *Stewart, Alexander Peter. American Confederate general.
 *Stone, William Leete. American historian.
 *Strachey, Sir Richard. English colonial official.
 *Strobel, Edward Henry. American diplomatist.
 *Sucher, Joseph. American composer.
 Sullivan, Thomas Crook. Brigadier-General (retired), U. S. A. Died, March 12; born, 1833.
 Summers, John Edward. Brigadier-General, (retired), Medical Corps, U. S. A. Died, October 1; born, 1822.
 Sutherland, (Mrs.) Evelyn Greenleaf. American playwright. Died December 24.
 Swan, Henry Frederick. English ship designer. Died, March 25; born, 1842.
 Taylor, Charles. Master of St. John's College, Cambridge. Died, August 12; born, 1840.
 Ten Eyck, William Hoffman. American Dutch Reformed Clergyman. Died, April 25; born, 1818.
 *Thomas, Charles Mitchell. American naval officer.
 *Thumann, Paul. German painter.
 Tiffany, Francis. American Unitarian clergyman. Died, September 3; born, 1827.
 Totten, Charles Adiel Lewis. American meteorologist. Died, April 12; born, 1851.
 Treat, John Harvey. American historiographer. Died, November 9; born, 1839.
 Tschigorin, T. Chess-master. Died, January 26.
 *Türr, Stephan. Hungarian soldier.
 *Tze-Hsi. Dowager Empress of China.
 *Ulrich, Charles Frederic. American painter.
 *Ütcheritz, Kuno von. German sculptor.
 *Vielé, Herman Knickerbocker. American author.
 *Vilas, William Freeman. American political leader.
 Villiers, Henry Montague. Vicar of St. Paul's, London. Died, September 9; born, 1837.
 *Voit, Carl von. German physiologist.
 Voorsanger, Jacob. American Semitic scholar. Died, April 27; born, 1852.
 Walton, Sir John Lawson. English Attorney-General. Died, January 18; born, 1852.
 Waugh, Benjamin. Founder (English) Society for the Prevention of Cruelty to Children. Died, March 11; born, 1839.
 *Wheelock, Joseph. American actor.
 *Whiteway, Sir William Vallance. Newfoundland statesman.
 *Whittier, Charles Albert. American soldier.
 *Whyte, William Pinkney. American statesman.
 *Wilder, Alexander. American physician.
 *Wilhelmj, August E. D. F. German-English violinist.
 Wilson, William Edward. English astronomer. Died, March 6; born, 1851.
 *Wister, Annis Lee (Furness). American translator of German novels.
 Wolff, Sir Henry Drummond. English diplomatist. Died, October 11; born, 1830.
 Wood-Allen, (Mrs.) Mary. American physician and author. Died, January 21; born, 1841.
 *Wormley, Katherine Prescott. American author.
 *Worthington, George. American Protestant Episcopal bishop.

*Wright, John Henry. Dean, Harvard Graduate School.
 *Wüllner, Adolf. German physicist.
 *Wyckoff, Walter Augustus. American economist.
 Yamashina, Prince. Japanese meteorologist. Died, May 2; born, 1873.
 *Young, Charles Augustus. American astronomer.
 *Zeller, Eduard. German theologian.

NELSON, HENRY LOOMIS. An American journalist and economist, died in New York City, on Feb. 29, 1908. He was born in that city on Jan. 5, 1846, and was educated at Williams College, and also at Columbia, where he graduated in law. He was admitted to the bar in 1869, practised until 1878, was Washington correspondent of the *Boston Post* in 1878-85, editor of that paper in 1885-86, an editorial writer for the *New York World* in 1889, and editor-in-chief of *Harper's Weekly* in 1894-98. He became professor of political science at Williams College in 1902, and held that position during the remainder of his life. As a journalist, Mr. Nelson strongly advocated political independence, the gold standard and civil service reform, and he remained an ardent admirer and supporter of Mr. Cleveland. As a teacher, he was very successful at Williams. He published: *Our Unjust Tariff Law* (1884); *John Rantoul*, a novel (1884); *The Money We Need* (1896).

NETHERLANDS, THE, or HOLLAND. A Kingdom of Western Europe, covering an area of 12,741 square miles. The population numbered 5,104,137 on Dec. 31, 1899, and was estimated at 5,747,269 on Dec. 31, 1907. The movement of population in 1907 was as follows: Marriages, 43,375; births (exclusive of 7,171 still-births), 178,677; deaths, 90,521; emigration, 4,393. Cities with over 50,000 inhabitants on Dec. 31, 1907, were: Amsterdam, 565,656; Rotterdam, 403,356; The Hague, the capital, 254,504; Utrecht, 114,895; Groningen, 74,272; Haarlem, 70,152; Arnhem, 63,113; Leiden, 57,559; Nimeguen, 52,213.

EDUCATION. Since 1900 primary education has been compulsory from 6 to 13 years of age. The cost is borne jointly by the State and communes. Private, or sectarian, education is also supported from public funds. In 1906 there were 157 public infant schools, with 27,291 pupils, and 1,001 private infant schools, with 95,201 pupils; 3,255 public elementary schools, with 567,764 pupils, and 1,687 private elementary schools, with 289,371 pupils; 84 middle class schools, with 12,558 pupils; 30 classical schools, with 2,026 pupils; a polytechnicum, with 1,176 pupils; 11 navigation schools, with 837 pupils; 4 public universities, with 3,384 students (427 female), and one private university. Besides these there is also a large number of special agricultural, horticultural, military, and normal schools, a national academy of art, a royal school of music, etc. Day and night schools for working people numbered 256, with 29,084 pupils.

PRODUCTION. In 1907 there were employed in the North Sea herring fisheries, 777 boats, of which 45 were steamboats, with about 10,000 men. The catch amounted to about 794,242 barrels (about 870 herrings to each), against 745,590 barrels in 1906. But the value of the 1907 catch was less than in 1906, the average price per barrel being \$4.80, against \$6.40 in 1907. The low price of 1907 was ascribed to the in-

creased catch of the English, Scotch, and German fisheries. Germany takes the greater part of the Dutch catch.

Coal is the only mining product. In 1906 the coal production was 564,238,000 kilos (1 kilo = 2.205 lbs.), valued at 2,665,000 guilders (1 guilder or florin = 40.2 cents). The State owns several mines. Turf or peat is cut in large quantities.

The cultivated land covered in 1906 2,388,964 hectares (1 hectare = 2.47 acres), distributed as follows: Arable land, 860,657; pasture, 1,198,006; gardens and orchards, 73,712; forest, 256,589. The principal crops are rye, oats, potatoes, wheat, barley, beans, peas, buckwheat, carrots, flax, and sugar-beets. The production of rye in 1907 was 14,494,600 bushels. The wheat production in 1906 was 4,978,000 bushels; in 1907, 5,329,150 bushels. The production of oats in 1906 was 19,588,000 bushels; in 1907, 20,000,000. The production of sugar-beets in 1907-8 was 1,142,000 metric tons; in 1908-9, 1,356,000. The production of beet-sugar in 1907-8 was 166,500 metric tons; in 1908-9, 197,400. Cereals and flour have to be largely imported, while vegetables are exported. In 1907 there were imported 932,478 barrels of wheat flour from the United States, 585,416 from Belgium, and 238,112 from Germany, as against 1,224,933 from the United States, 585,416 from Belgium, and 238,207 from Germany in 1906. During 1908 the United States continued to lose, and Belgium and Germany to gain in this respect. The gain of Germany is ascribed to the law which went into effect on Mar. 1, 1906, allowing the free importation into Germany of wheat destined for export as flour. A characteristic industry of the Netherlands is the growing of tulip and hyacinth bulbs, which attain perfection only in the small space of territory between the cities of Leiden and Haarlem. This stretch of land was formerly the bottom of the old Haarlem Sea, which was laid dry about 1852, and amounts to about 10,027 acres. The export of bulbs and bulbous roots in 1907 was 33,610,280 pounds, of which 6,214,120 went to the United States, 13,950,200 to Great Britain, 8,728,720 to Germany and Austria-Hungary, 2,307,360 to the three Scandinavian countries, and 793,100 to Russia. As an indication of the growth of this export within recent years, it may be mentioned that in 1897, the export was 12,543,955 pounds, and in 1905, 25,640,340 pounds.

In the year ending Aug. 31, 1908, there were in the cotton mills 396,160 spinning spindles, and the consumption of cotton was 77,326 bales, of which 57,876 was American and 18,710 East Indian. The number of ships built in 1907 was 321, of 144,991 tons.

FOREIGN COMMERCE. The imports and exports in 1907 amounted to 2,671,700,000 and 2,212,100,000 florins respectively, against 2,523,500,000 and 2,083,900,000 respectively in 1906. The great classes of imports and exports in 1907 were as follows, in florins:

	Imports	Exports
Foods	680,400,000	686,400,000
Raw materials	1,065,800,000	779,000,000
Manufactures	501,600,000	413,600,000
Unclassified merchandise	389,300,000	319,400,000
Precious metals	34,600,000	13,700,000

The transit trade amounted in 1906 to 7,825,000,000 kilograms. The principal imports in 1906 were: iron and steel and their manufacture, 311,626,000 florins; textiles, raw and manufactured, 150,311,000; cereals and flour, 428,563,000; coal, 82,307,000. The principal exports in 1906 were: iron and steel and their manufactures, 207,389,000 florins; textiles, raw and manufactured, 104,259,000; cereals and flour, 256,561,000; margarine, 55,143,000; sugar, 64,140,000; vegetables, 45,000,000. The special trade with the principal countries of origin and destination in 1907 was as follows, in florins:

	Imports	Exports
Great Britain	322,600,000	430,900,000
Germany	599,600,000	1,159,700,000
Belgium	285,500,000	285,000,000
Russia	209,000,000	12,100,000
Rumania	71,700,000	3,400,000
Spain	81,200,000	6,500,000
Dutch East Indies	436,800,000	82,200,000
British East Indies	61,700,000	2,600,000
United States	294,300,000	86,600,000

In August, 1908, a commercial agreement was concluded between the Netherlands and the United States, which is to continue in force until Aug. 12, 1909, when either party shall notify the other of its further intention. The Netherlands agreed to admit American meat products at certain specified rates of duty, and the United States agreed to admit Dutch brandies and other spirits at a specified reduced duty.

COMMUNICATIONS. The Dutch merchant marine consisted on Jan. 1, 1908, of 292 steamers and 435 sailing vessels. In 1908 three leading steamship companies trading in the Dutch East Indies formed a combine for the purpose of establishing new lines, raising new capital, fixing freight rates, purchase of coal, insurance, and mutual support in competition with other companies. The combined fleet consisted of 90 steamers, of 244,000 registered tons, and it was shortly to be increased by 12 steamships, of 44,000 tons, then in construction. The trust company, entitled "Nederlandsche Stoomvaart Unie," has received from each of the three companies, shares to the value of 1,000,000 florins.

The length of railway on Jan. 1, 1908, was 1,934 miles; of State telegraph lines in 1907, 4,481 miles.

BANKS. The note circulation of the Bank of the Netherlands, the only private bank of issue, in 1907, was 259,552,000 florins. The postal savings banks had, in 1906, 139,683,000 florins of deposits due to 1,259,681 depositors.

FINANCE. The budget estimates of revenue and expenditure for 1909 were 184,728,351 and 200,576,140 florins respectively. The principal estimates of revenue were: Land, personal, and income taxes, 42,470,000 florins; excise, 57,260,000; stamps, registration, and succession taxes, 27,429,300; customs, 11,821,000; posts and telegraphs, 18,118,000; railways, 4,188,140. The principal estimates of expenditure were: Civil list, 863,750 florins; war, 27,485,299; navy, 19,734,981; public works, 35,219,387; public debt, 36,596,133; colonies (central administration), 2,855,320. The public debt at the beginning of 1909 stood at 1,128,179,300 florins.

ARMY AND NAVY. The Army is intended for home defense only and is really a sort of mod-

fied militia, with permanent staffs, cadres of officers and non-commissioned officers. Of the rank and file as many as possible are obtained by voluntary enlistment, and the remainder, by far the larger part, by conscription. The annual contingent is limited to 17,500, of whom 400 are assigned to the naval service. Of the army contingent, 11,800 serve in the ranks for 8½ to 12 months in the dismounted and 18 months to 2 years in the mounted branches. The remaining 5,300 conscripts serve four months in the dismounted branches. There are 12 regiments of infantry; 4 regiments hussars; 4 regiments field artillery; 1 division horse artillery; 4 regiments garrison artillery; and 1 regiment engineers, including sub-marine mine, pontoon, railway and telegraph companies. The war strength is 3,775 officers and 175,216 men of which 78,000 belong to the field army, 69,000 to the fortress troops and 31,000 to the territorial defense troops. The peace strength of the army was 542 officers and 20,645 men, and the annual military budget for 1908 was 57,830,000 francs. The infantry is armed with the Mannlicher rifle, cavalry with a carbine of the same make, and the field artillery with a rapid fire Krupp gun. The Schwarzlose machine gun was adopted for cavalry troops, and portable search-light sets were provided for the mobile army in 1908.

The effective navy at the beginning of 1908 consisted of 5 third-class battleships, aggregating 26,130 tons; 4 armored coast defense vessels, 13,000 tons; 8 protected small cruisers, 30,300 tons; 1 unprotected small cruiser, 1,300 tons; 13 gunboats, 9,683 tons; 45 torpedo boats, 4,490 tons. Total, 76 ships of 84,903 tons, besides 1 submarine, with crews numbering 6,548. In 1907 the increase in tonnage was 290.

GOVERNMENT. Queen Wilhelmina Helena Pauline Maria, born Aug. 31, 1880, succeeded her father on Nov. 23, 1890. The cabinet of Feb. 12, 1908, consisted as follows: Foreign Affairs, Dr. J. Khr. R. de Marees van Swinderen; Interior, Dr. Th. Heemskerk; Justice, Dr. H. P. L. Nelissen; Navy, Vice-Admiral J. Wentholt; Army, Lieut.-Gen. F. H. A. Sabron; Finance, Dr. M. J. C. M. Kolkman; Waterways, Dr. J. G. S. Bevers; Agriculture, Industry, and Commerce, A. S. Talma; Colonies, A. W. F. Idenburg.

HISTORY. The dispute with Venezuela was the principal event in the foreign relations of the Netherlands during 1908. Early in the year the bubonic plague broke out in La Guayra, the port of the Venezuelan capital. Curaçao, the Dutch colony in the West Indies, thereupon established a quarantine against Venezuelan ports. About the same time, President Castro of Venezuela requested the Dutch government to put a stop to the smuggling of contraband, including arms, from Curaçao into Venezuela and to take steps to obstruct the filibustering plans of Venezuelan refugees in Curaçao. To this communication M. J. H. de Reus, the Dutch minister at Caracas, replied on April 9. He explained that his government could not carry out all of President Castro's wishes and added that the Venezuelan government had been misinformed by its consul at Willemstad, the capital of Curaçao, who had gone to the island with strong prejudices against it. The references to his consul are believed to have exasperated Castro, and on May 14 he issued a

decree, suppressing all traffic in Dutch vessels between Venezuela and Curaçao and ordering that all goods usually transhipped at Curaçao should henceforth be transhipped at Puerto Cabello. Other measures taken against the Dutch West India Islands were the seizure of four Dutch vessels plying between the islands of Curaçao and Aruba, the imprisonment of their crews, the opening of correspondence of Curaçao officials, and the prohibiting of foreign laborers from working on vessels in Venezuelan ports. On July 21 the Dutch Minister at Caracas received his passports from the Venezuelan government. Accompanying the passports was a letter from the Venezuelan minister of foreign affairs, in which M. de Reus was informed that in view of the opinions expressed in his published letter of April 9, President Castro considered him incompetent to serve as a friendly medium between the two governments. Another letter was sent to the foreign minister of the Netherlands, stating that the expulsion of M. de Reus did not alter the existing friendly relations between the two governments, and asking for the appointment of another intermediary.

When the news of the expulsion of M. de Reus reached Curaçao, an angry mob made a violent demonstration against the Venezuelan consul at Willemstad, compelling him to leave the island. To this the Venezuelan government replied by withdrawing the exequaturs of all Dutch consuls in Venezuela. At The Hague the various acts of the Venezuelan government were regarded as incapable of being submitted to arbitration, since they involved questions of sovereignty and national honor, and on July 30 orders were issued to the battleship *Jacob Van Heemskerk* to sail for the Caribbean Sea, to be available if needed in Venezuelan waters. In August the Dutch government was informed by the government of the United States that the latter entertained no objection to a blockade of Venezuelan ports, provided that no Venezuelan territory would be occupied. The Queen was reported to be much averse to war and to desire a peaceful solution of the dispute. Nevertheless it was announced in August that the Dutch naval squadron in the Caribbean would be reinforced in September by the cruisers *Utrecht* and *Holland*. On Sept. 6 an ultimatum was sent to Venezuela, demanding the revocation before Nov. 1 of the decree of May 14, in regard to the transshipment of goods at Puerto Cabello instead of Willemstad. At the same time the Dutch government expressed regret for the conduct of the mob toward the Venezuelan consul at Willemstad. An admission of errors on the Dutch side was also implied in the announcement made upon the arrival of M. de Reus in Holland, that he had been "honorably relieved" of his duties at Caracas.

On Sept. 15 President Castro removed the embargo on the movement of passengers between Venezuela and Dutch West Indian ports, but the principal Dutch grievance remained unheeded. In the first week of December three Dutch warships, the battleship *Jacob Van Heemskerk* and the cruisers *Friesland* and *Gelderland*, made a demonstration against Venezuela, steaming along the coast from Puerto Cabello to La Guayra. On Dec. 13 the *Gelderland* seized the Venezuelan coast-guard vessel *Alis* near Puerto Cabello, and on the following day the

Venezuelan coast guard vessel *23 de Mayo* was captured without resistance. Meanwhile President Castro, who had left for Europe, was replaced by Vice-President Gomez. The latter revoked the transshipment decree and on Dec. 23 orders were sent to the Dutch warships off the Venezuelan coast to cease hostile action.

On Jan. 25, 1908, the Liberal ministry fell as a result of the rejection by the Second Chamber of the war budget, which reduced the effective strength of the army. It was succeeded by the Conservative ministry, the composition of which is given above under *Government*. In September the Queen celebrated her twenty-eighth birthday and the tenth anniversary of her formal accession to the throne.

NEVADA. One of the Western Division of the United States. Its area is 110,590 square miles, of which 860 square miles consist of water. The population in 1908, according to federal estimate, was 42,335.

MINERAL PRODUCTION. Information for the six months ending June 30, 1908, indicated that the number of tons of ore mined for the first six months of the year was 253,982, with a total value of \$5,785,393.40. Practically every county of the fourteen in Nevada produced ore during this period. Esmeralda county led the State in production. The great camp of Goldfield is in this county. Nye county, which includes Tonopah, was second in production, and Storey county, in which the old Comstock mines are located, ranked third. The total production for the year 1908 is estimated at \$15,000,000. The first six months of the year were marked by depression and labor troubles, but these were adjusted so that the production resumed its normal condition in the latter half of the year. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$22,088,700, as compared with the value in 1906 of \$15,990,663.

Notwithstanding the prevailing dullness in many of the newer mining camps in Nevada in 1908, the larger reduction plants have steadily progressed in development and output during the year. The output of gold has probably remained about stationary, while the production of silver from silicious ores has undoubtedly increased considerably. The notable feature has been the installation of numerous mills by prosperous companies, which thereupon ceased shipping to distant smelters. This change has permitted the utilization of large quantities of ore which would not bear both freight and smelter charges, and has resulted also in the adoption of better systems of mining than those employed when rich ore only was hoisted. At Goldfield and Tonopah much development work was carried on during the year. The production of copper on a large scale was begun at Ely. The mining industry of the State was really in much better condition at the end of 1908 than in 1907, notwithstanding the fact that a number of camps have been virtually idle. The Director of the Mint estimates the output of gold in 1908 at \$12,090,218, as against \$15,411,000 in 1907; and the production of silver at 9,322,828 fine ounces, as against 8,280,500 in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm

crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Spring wheat, 990,000 bushels, valued at \$1,119,000, from 33,000 acres; oats, 315,000 bushels, valued at \$205,000, from 7000 acres; barley, 240,000 bushels, valued at \$185,000, from 8000 acres; potatoes, 360,000 bushels, valued at \$270,000, from 3000 acres; hay, 400,000 tons, valued at \$3,525,000, from 200,000 acres. The yield per acre of wheat was 30 bushels, which is the largest production per acre of any of the States. Many important irrigation projects are being carried on in the State, which will ultimately greatly increase its agricultural development. (See *IRRIGATION*.) Large numbers of sheep are raised in the State. They numbered 1,554,000 in 1908. The wool clipped was 6,000,000 pounds, valued at \$948,600 (estimate).

MANUFACTURES. The value of products manufactured by establishments classed as factories in 1905 was \$3,096,274, or 145.5 per cent. greater than the similar value in 1900. Among the mentionable industries are railway repair-shop works, flouring and grist milling, printing and publishing, and the manufacture of butter and malt liquors.

EDUCATION. At the school census taken in April, 1908, there were reported 12,025 children of school age (6 to 18 years). The total enrollment of the schools of the State was 10,440 and the average daily attendance was 7312. In the year ending Aug. 31, 1908, there were employed 449 teachers. There was spent for school purposes during the summer period \$601,993. The average salary of male teachers was a little in excess of \$112.57 for a month of twenty days, and of female teachers a little less than \$60.96. The average length of the school year was 8.1 months. Several new school houses were built during the year. The building erected at Goldfield cost over \$100,000. The State Legislature of 1907 passed a school law abolishing the office of county superintendent and dividing the State into five educational districts, each having a deputy State superintendent to supervise the schools. The sum of \$240,663.27 was appropriated among the schools. The face value of bonds owned by the State school funds in Oct., 1908, was \$1,875,000.

FINANCE. The report of the State treasurer showed a balance in the treasury Jan. 1, 1908, of \$674,341. The receipts for the year ending Dec. 31, 1908, were \$1,004,040. The total disbursements for the same period were \$875,941, leaving a balance in the treasury Dec. 31, 1908, of \$802,441. The largest expenditure was for the general school fund, \$233,425.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in 1908. The conditions brought about by the miners' strike in Goldfield in the latter part of 1907 continued in January, 1908. Governor Sparks had declared early in December that he was unable to preserve order in Goldfield with the power available. He therefore requested that Federal troops be sent, as Nevada has no State militia. President Roosevelt acceded to this request and dispatched General Funston with a body of regular troops to Goldfield. At the same time he appointed a commission to make an investigation as to the necessity of Federal aid. The situation did not seem critical to members of this Commission, and the President, on Dec. 20, ordered that all troops be withdrawn on Dec. 30.

This action, however, met with strong protest on the part of Governor Sparks, who said that the miners were armed and that if the Federal troops were withdrawn a general conflict would become imminent. The President extended the time that the troops would be allowed to remain at Goldfield three weeks beyond Dec. 30. On Jan. 14, the Governor issued a call for a special session of the Legislature to provide means for maintaining the State's authority within its own borders. On Jan. 4, President Roosevelt wrote to Governor Sparks, giving a résumé of the report of the Commissioners, who declared their belief, after a careful investigation on the ground, that there was no warrant whatever for calling upon the President for troops, and that the troops should not be kept indefinitely at Goldfield. The report further declared that there were no conditions existing in the State warranting interference by the Federal government, and that an effort was being made by the State of Nevada to secure the performance by the United States of the ordinary police duties which should be performed by the State itself. The Legislature, which had been called in special session by Governor Sparks, passed, in the latter part of January, a bill for the organization of a State police force, which should do away with the necessity of employing Federal troops in case of disorder. Following this action the Federal troops were withdrawn. (See **STRIKES**.) On April 25, the Supreme Court of the State handed down a decision declaring the boycott in all forms illegal, and making it possible for injured parties to recover damages against any individuals or corporations instituting a boycott. In the case at issue the Industrial Workers of the World together with the Goldfield Miners' Union had declared a boycott against a newspaper published at Goldfield. A decision of the lower court that the union, being an unincorporated body, could not be sued, was reversed. On May 22, John Sparks, the Governor of the State, died at Reno. On Oct. 24, an election was held at Reno to determine whether or not gambling should be permitted in that city. The Anti-Gambling League made a strong campaign and great public interest was shown in the election. The attempt to close the gambling places was defeated by a vote of 2010 to 1209.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention met on April 21, and the delegates chosen were instructed to vote for William H. Taft for President. The Democratic State Convention, on June 2, selected delegates to the National Convention, instructed to vote for William J. Bryan. In the election of Nov. 3, Nevada was carried by the Democratic party, by a plurality of about 500. The Legislature remains Democratic, which insures the reelection of Senator Francis G. Newlands. The detailed vote was as follows: Bryan, 11,212; Taft, 10,777; Debs, 2203; Hisgen, 435.

OTHER EVENTS. On June 19, a statue of John W. Mackay, presented by Clarence H. Mackay and his mother, was dedicated at the Mackay School of Mines at Reno. The dedicatory address was made by Colonel George Harvey of New York. On Sept. 4, the mining town of Rawhide was partly destroyed by fire, causing a loss of \$750,000. From 2000 to 3000 people were made homeless and several were severely

injured. The rebuilding of the town was immediately begun.

STATE OFFICERS: Governor, vacancy; Lieutenant-Governor and acting Governor, D. S. Dickerson; Secretary of State, W. G. Douglas; Treasurer, D. M. Ryan; Comptroller, Jacob Eggers; Superintendent of Public Instruction, Orvis Ring; Attorney-General, R. C. Stoddard—all Democrats, except Eggers, Ring and Douglas, Republicans.

JUDICIARY: Supreme Court; Chief Justice, Frank H. Norcross, Rep.; Justices, George F. Talbot, Dem.; W. G. Douglas, Dem.; Clerk ex-officio, Eugene Howell, Dem.

The State Legislature of 1909 is composed of 11 Democrats, and 14 Republicans in the Senate, 19 Democrats and 16 Republicans in the House. The State representation in Congress will be found in the article **UNITED STATES**, under the section *Congress*.

NEW BRUNSWICK. A maritime province of Canada. Area, 27,985 square miles. Population in 1901, 331,120. Fredericton, the capital, had 7117 inhabitants in 1901. For details respecting population, education, production, commerce, etc., see **CANADA**. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada, and acting through an executive council, or responsible ministry, and a unicameral House of Assembly of 46 members, elected for four years. The present Lieutenant-Governor is Lemuel John Tweedie, appointed March 2, 1907. The Premier is J. Douglas Hazen.

HISTORY. The leading event of 1908 was the provincial elections, which were held in March, and resulted in the defeat of the Liberal government of Hon. C. W. Robinson. The Conservatives, led by Hon. J. D. Hazen, were returned to power for the first time in twenty-five years. The new ministry is as follows: J. D. Hazen, Premier and Attorney-General; J. K. Flemming, Provincial Secretary; John Morrissey, Commissioner of Public Works; W. C. H. Grimmer, Surveyor-General; D. V. Landry, Commissioner of Agriculture; H. F. McLeod, Solicitor-General; Robert Maxwell, without portfolio. It was noteworthy that about a month before the elections, committees of the government and opposition met at St. John, and agreed to run the elections without bribery or use of money except for legitimate expenses. Premier Hazen excited much comment by taking part in the Dominion elections campaign, and by making serious charges against Hon. Dr. Pugsley, Minister of Public Works at Ottawa. Mr. Hazen was not successful in proving the charges.

NEW CALEDONIA. An island in the Pacific, the southernmost of the Melanesian Islands. With the Loyalty Islands to the east, and the Isle of Pines to the southeast, it constitutes a French colony. Total area, 7652 square miles; population (1906), 53,346, including 22,177 whites, 3336 colored immigrants, and 27,833 natives. The colony contains a penal settlement, and convicts form a large proportion of the white population, but no convicts have been sent there since 1898. The colored immigrants, brought under contract, include Chinese from Annam, Japanese, and Kanakas. Nouméa, the capital, had 9968 inhabitants in 1901. About half of the area is mountainous, one-fourth pasture, one-fourth cultivated or cultivable, and about 500 square miles are covered

with forest. The agricultural products include wheat, maize, sugar, coffee, tobacco, grapes, pine-apples, and manioc. Mining employs some 3500 workmen, mostly Japanese. In 1907, the nickel production amounted to 101,707 metric tons, against an export of 130,688 tons in 1906; the chrome export, 31,552 tons, against 57,367 tons in 1906, there being large stocks of chrome, aggregating some 65,000 tons, in the island; the cobalt export, 3942 tons, against 2487 tons in 1906; the copper production, 437 tons. The cobalt export has decreased in recent years, due to the competition of Canadian cobalt. Pockets of gold, in some of which the precious metal runs as high as an ounce to the ton, continue to be found. Small quantities of titanium have also been found. There are large deposits of iron ore, but it is all chromic and at present smelters try to avoid it. Antimony, coal, and mercury are found, but have not yet attained importance. The imports and exports in 1907 amounted to 9,410,485 and 8,504,164 francs, respectively, the trade with France being represented by 4,947,000 francs of imports and 2,625,000 francs of exports. The imports are mainly foods, textiles, iron manufactures, and machinery; the exports, besides those mentioned above, include copra, coffee, mushrooms, wine, rubber, sandalwood, and hides. In 1908 there were 11 miles of railway, from Nouméa to Dumbéa. Telegraphs have a length of over 635 miles. The colony is administered by a governor, assisted by a privy council and an elective general council. The military force in 1908 consisted of 504 Europeans. The budget for 1907 balanced at 3,974,000 francs. The debt stood in 1907 at 7,560,000 francs. The expenditure of France was fixed for 1908 at 3,213,142 francs, of which 1,709,037 was for the penal establishment. Subject to the authority of the governor are the protectorates of the Wallis Islands, northeast of Fiji, 37 square miles and 4500 inhabitants; the Fortuna and Alofi islands, south of the Wallis group, 61 square miles and 1500 inhabitants; and the Huon Islands, 170 miles northwest of Caledonia, with few inhabitants.

NEWFOUNDLAND. A British colony in North America, consisting of the island of Newfoundland (42,934 square miles), and its dependency, the coast of Labrador (119,000 square miles). In 1901 the population of the island was 217,037; of Labrador, 3634. At the end of 1906 the population of the island was estimated at 228,755; of Labrador, 4023. In 1907 the number of arriving intended settlers was 851; of emigrants, 7029. During the four years, 1904-7, the number of arriving intended settlers was 4008; ordinary travellers, 4886; sportsmen and tourists, 6306; and former residents, 26,293. During the same years the number of transient outward passengers was 16,572, and of emigrants, 27,662. The birth rate in 1906 was 29.6, and the death rate, 20.1 per 1000 population. The population of the principal cities in 1901 was: St. Johns, the capital, 29,594; Harbour Grace, 5184; Carbonear, 3703; Bonavista, 3696; Twillingate, 3542. The school attendance in 1906 was 44,105, of which 15,244 was at Roman Catholic, 14,976 at Anglican, 12,525 at Methodist, and 1360 at other schools. The Roman Catholic, Anglican and Methodist colleges had 354, 204 and 433 students, respectively.

FISHERIES. Fishing is the most important occupation. Of the total population in 1901, 62,674 were engaged in the fisheries, 2475 in agriculture, 1576 in mining, and 3111 were mechanics. The products of the fisheries in 1907 were valued at \$10,058,052; of the mines, \$1,382,793; of the forests, \$494,910. The fisheries may be divided into the Shore, Labrador, Straits and Gulf, and Banks fisheries. The last, at one time the most important, have greatly declined in value. The Labrador fisheries are followed by some 20,000 men. In 1907 the exports of dried codfish amounted to 1,422,445 quintals (the Newfoundland fish quintal = 112 lbs.); cod oil, 4890 tuns; cod liver oil, 51,547 gallons; sealskins, 164,509 in number; seal oil, 5351 tuns; packed herring, 130,878 barrels; frozen herring, 2214 tuns; whalebone, 902 tons; pickled salmon, 4716 tierces (300 lbs. each); fresh salmon, 164,302 pounds. The seal fishery of 1908 was commenced on Mar. 10 and concluded on May 7. The weather during the first four weeks was unusually stormy, and the ice floes heavy. There were brought in 213,813 seals, weighing 4537 tons and valued at \$1,827,089—a decrease of 31,188 seals, 1333 tons in weight, and \$393,028 in value from 1907. The catch of cod in the Labrador fisheries in 1907 exceeded that of 1906, but was unevenly distributed, the catch on the northern part of the coast being very short, while on the southern part it was exceptionally large. The results were exceptionally unprofitable to both fishermen and shippers, for, owing to bad weather and scarcity of salt in some sections, the cod could not be got to market in good condition. Direct shipments of cod from the Labrador coast to European markets in 1907 amounted to 289,493 quintals, valued at \$1,013,227, against 250,887 quintals, valued at \$1,030,432, in 1906. Other shipments from the Labrador fisheries in 1907 were 715 tierces of salmon, valued at \$16,057, and some trout, herring, seal oil, cod oil, and whalebone.

AGRICULTURE AND LUMBERING. Very few people are engaged exclusively in farming. Nearly all fishermen own gardens in which they raise potatoes, turnips, and cabbages for domestic use. Hay, barley, and oats are also grown. In 1901 there were 85,533 acres of cultivated land, 34,000 acres of pasture land, 32,767 cattle, 8851 horses, 78,052 sheep, and 34,767 hogs. The white pine of the forests is of superior quality, and the mainstay of the lumbering industry. The export of lumber in 1906-7 was valued at \$326,581. The Harmsworth Company was constructing in 1908 extensive pulp and paper mills at Grand Falls, on the Exploits River. The export of lumber from Labrador in 1906-7 was valued at \$26,301, and of furs, \$33,487.

MINING. The mineral deposits at present being worked are situated along the sea coast. The vast interior of the island, containing from 4000 to 5000 square miles of mineral-bearing formation, is practically untouched. This formation is rich in copper ore, usually carrying silver, gold, and nickel. Iron pyrites has been mined at Pilley's Island for the past fifteen years, and the supply is yet visible for years. The ore gives 54 per cent. sulphur, and is superior to Spanish pyrites. The annual output of 40,000 tons is shipped entirely to New York. In 1905 the Wabana iron (hematite) mine was opened at Belle Isle, about 12 miles from St. Johns City. This de-

posit is one of the most striking in the world. The land deposit is about three miles in length and has an average width of three-eighths of a mile. The upper bed is from 7 to 9 feet thick and contains about 20,000,000 tons of ore, giving about 54 per cent. of metallic iron. The lower bed runs from 9 to 17 feet in thickness. It is of far greater extent than the upper bed, and contains about 40,000,000 tons of ore, giving 52 per cent. of metallic iron. Development work on the submarine deposits is being carried on. There are two other deposits on the east containing about 1,000,000 tons, and one on the extreme west of the island, the probable estimate of which is between 2,000,000 and 3,000,000 tons. At present the daily output from the Wabana mine is 7500 tons, of which 5000 tons are mined by the Dominion Iron and Steel Company, and 2500 tons by the Nova Scotia Steel and Coal Company. On the mainland, about 18 miles north from Wabana, a deposit of iron ore has been found covering about nine square miles and containing on a conservative estimate from 30 to 40 million tons. The ore runs about 62 per cent. and may be classed as magnetite. A rich copper deposit has been discovered on the southeast side of Red Indian Lake, near the mouth of the Victoria River, on government land. The areas supposed to contain the deposit, extending over 16 miles, have already been taken up by the Harmsworth Company. On the opposite side of the lake a deposit of zinc and galena was said to have been found on land belonging to the Harmsworths. In 1907 the mineral products raised and shipped were as follows: Iron ore from Belle Isle, 864,195 tons, valued at \$950,615; copper ore from Tilt Cove mine, 48,044 tons, valued at \$240,220; pyrites ore from Pilley's Island, 19,920 tons, valued at \$59,760; gold (estimated in copper ore), 3603 ounces, valued at \$74,474; brick manufactured, 500,000, valued at \$4000; building and paving stone, \$3150; giving a total value of \$1,332,219, against \$1,462,344, in 1906. The returns for 1907 are stated to be somewhat incomplete, several of the mine operators having failed to furnish information to the Geological Survey.

FOREIGN COMMERCE. The imports and exports (domestic produce) during the year ending June 30, 1908, amounted to \$11,516,111 and \$11,815,769, respectively, against \$10,426,040 and \$11,910,007 in 1906-7. The principal imports in 1906-7 were: Coal, \$565,208; flour, \$1,529,025; textiles, \$1,612,612; salted beef, \$305,041; salted pork, \$460,231; machinery, \$407,656; hardware, \$300,207. The principal exports in 1906-7 were: Copper, \$278,950; iron ore, \$890,670; iron pyrites, \$184,140; dried cod, \$7,873,172; canned lobsters, \$383,767; pickled herring, \$222,997; cod oil, \$358,713; seal oil, \$447,967; whale oil, \$173,011; sealskins, \$194,300; undressed furs, \$137,850. The trade with the principal countries of origin and destination in 1907-8 was as follows:

From and to	Imports	Exports
Great Britain.....	\$2,668,802	\$1,209,428
Canada.....	4,257,647	1,863,784
Other British colonies.....	357,470	463,359
United States.....	3,858,892	1,177,709
Other foreign countries.....	373,300	7,101,209

COMMUNICATIONS. The tonnage entered and cleared in 1906-7 (excepting coastal) was 1,834,452, of which 988,348 was British. The total number of vessels registered in the colony on Dec. 31, 1906, was 3199, of 135,785 tons, including 63 steamers of 11,194 tons. The length of railway in operation in 1906 was 636 miles, nearly all owned by the government; of telegraph lines, 2988 miles.

GOVERNMENT AND FINANCE. The executive power is vested in a Governor, appointed by the Crown, and an executive council, or Ministry, responsible to the Lower House of the Legislature. The latter consists of a Legislative Council of not more than 18 members, and a House of Assembly of 36 members, elected by manhood suffrage. In 1908 the Governor was Sir William Macgregor; the Premier, Sir Robert Bond. The revenue, derived almost entirely from customs duties, amounted in 1906 to \$2,680,468; the expenditure, \$2,610,391. The customs revenue in 1907-8 was \$2,446,606. The debt of the colony stood on June 30, 1907, at \$22,723,868, of which \$422,000 was a temporary loan due to the Bank of Montreal.

HISTORY. The history of the colony in 1908 was unusually exciting on account of the fall of 50 per cent. in the price of dried codfish, which is 70 per cent. of the exports, and also by reason of the general elections. The Liberal government of Premier Sir Robert Bond was opposed by the People's party, led by Sir Edward Morris, formerly a member of the Bond government, who afterward resigned and, with his following, joined the ranks of the Opposition he now leads. The Legislature was dissolved and general elections were held on Nov. 2. The government appealed for a new lease of power, chiefly in order to champion the colony's right to better terms in controlling the coast fisheries against American fishermen, to secure fuller recognition of its rights as against Canada in regard to the Labrador boundary, and to thwart any political plotting with the view to confederate Newfoundland with Canada. The People's party affirmed the weakness of the Bond government in failing to protect the fisheries, the collapse of its industrial enterprises, and asked for a special representative for Newfoundland at The Hague Tribunal to which the Atlantic fisheries question was to be referred. The election resulted in a deadlock, each side obtaining eighteen seats. At the end of the year the deadlock had not been broken.

NEW GUINEA, BRITISH. See PAPUA.

NEW GUINEA, GERMAN. See GERMAN NEW GUINEA.

NEW HAMPSHIRE. One of the North Atlantic Division of the United States. Its area is 9341 square miles, and its population in 1908, according to federal estimate, was 439,634.

MINERAL PRODUCTION. The principal mineral products, in the order of their value, are granite, clay products, coal products, mineral waters; also, unclassified, mica, pottery, precious stones, and whetstones. The aggregate value of all was \$2,028,638 in 1905, \$2,247,927 in 1906, and \$1,390,360 in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in the State in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 1,092,000 bushels, valued at \$863,000, from 28,000 acres; oats, 398,000

bushels, valued at \$235,000, from 13,000 acres; barley, 48,000 bushels, valued at \$38,000, from 2000 acres; buckwheat, 43,000 bushels, valued at \$34,000, from 2000 acres; potatoes, 1,900,000 bushels, valued at \$1,387,000, from 19,000 acres; hay, 589,000 tons, valued at \$9,924,000, from 640,000 acres; tobacco, 178,200 pounds, valued at \$24,948, from 99 acres. The acreage and production of farm crops has changed little in the last few years. All kinds of farm animals, except neat cattle, have increased slightly. The number of dairy cows in 1908 was 124,000. The estimated value of the wool clip in 1908 was \$95,480.

MANUFACTURES. The Bureau of Labor in its report for 1907 gathered information from 1824 manufacturing establishments in the State. These show a total investment in all branches of manufacturing industries of \$119,653,209, and a product for the year of \$164,693,442. These establishments gave employment to 62,568 males, 24,694 females, and 986 children under sixteen years. The average weekly earnings for males for all industries was \$12.32, and females, \$7.42. To the male wage earners the total amount of \$30,048,077 was paid, and to females, \$8,305,996. The eleven cities of the State had a manufacturing product of \$106,058,686, or about 65 per cent. of the total for the State. The cities rank as follows in the value of production: Manchester, \$40,397,334; Nashua, \$17,176,439; Concord, \$8,370,981; Dover, \$8,047,024. The bureau urges the need of an equitable factory inspection system in the State. New Hampshire is one of the few States without systematic factory inspection. The commissioner urges also that the scope of the Bureau of Labor be enlarged to include the inspection of factories and workshops with a view to enforcing the child labor law and sanitary regulations, and to securing the wider use of safety appliances for machinery and the proper equipment of buildings used for manufacturing purposes with fire escapes.

FINANCE. The State treasurer's report showed a balance on Sept. 1, 1907, of \$121,306.35; receipts from Sept. 1, 1907, to Aug. 31, 1908, of \$1,868,516.39, and disbursements during the same period of \$1,839,824.10, leaving a balance Sept. 1, 1908, of \$149,998.64. The principal sources of revenue were the State property tax, 28 per cent.; the railroad tax, 35 per cent.; and the savings bank tax, 25 per cent. Smaller proportions came from the legacy tax and life insurance, telephone, and telegraph company taxes. The funded debt, Sept. 1, 1908, amounted to \$706,700.00. Of the total receipts of \$1,868,516.39, only \$905,823.01 was actual revenue; and of the disbursements of \$1,839,824.10, \$968,589.69 was actual expense. Therefore, the expense account exceeded the revenue \$62,766.68.

EDUCATION. The report of the Superintendent of Public Instruction for the fiscal year ended July 15, 1908, shows 2127 schools, 1234 graded schools, and 54 high schools. There were in the State on July 15, 1908, 37,204 boys of school age (5 to 16) and 36,861 girls, or a total of 74,065. The average attendance was 49,398. There were 126 men teachers, with an average salary of \$41.83, and 2529 women teachers, with an average salary of \$36.01. The total revenue for the support of the schools during the year was \$1,683,535, and the total expenditures, \$1,540,123. The Superintendent of Public

Instruction in his annual report urges the necessity of agricultural and industrial education.

CHARITIES AND CORRECTIONS. Among the charitable and correctional institutions of the State are the following, with their population in 1908: New Hampshire Industrial School at Manchester, 176; New Hampshire School for Feeble-Minded Children, Laconia; New Hampshire Soldiers' Home, Tilton, 70. There are also orphans' homes and homes for dependent children and other similar institutions. The report of the State Board of Charities and Corrections for the fiscal year ending Aug. 31, 1908, states that there is but a slight increase in the population of the schools for feeble-minded children, owing to lack of accommodations, and an increase in the number of public charges in orphanages. The new juvenile court law which went into effect July 1, 1907, has attracted much attention in the State and is regarded with favor by those in charge of the institutions. By a legislative act of 1907, a State sanitarium was authorized, and in 1908 a site for this institution was selected at Glen Cliff in the town of Benton.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in 1908. The chief political interest during the year was centred in the struggle for the Republican nomination for governor, which in New Hampshire is equivalent to election. The issues were the same as in the State campaign of 1906, when Winston Churchill was a candidate of the anti-railroad element, and Rosecrans W. Pillsbury of the anti-machine forces, for governor, and, while these candidates were unsuccessful, they were able to compel the party to adopt stringent declarations for progressive reform legislation, including the abolition of the free pass, taxation reform, and direct primaries. Only a part of these measures were enacted by the Legislature of 1907, as that body was dominated by the railroad and machine interests. In 1908 the issues between the machine and the "reform" element were not as clearly cut as in 1908, as the machine men adopted reform recommendations. Mr. Churchill was again an aggressive leader in opposition to the railroads, but William E. Chandler, the former United States Senator, was active on the other side, to the surprise of everybody. The "reform" element had as their candidate for governor, Rosecrans W. Pillsbury, a newspaper editor, who aggressively assailed the railroads as a political agent in his paper, and demanded the platform reforms. The machine candidate was Col. Henry B. Quinby, with Bertram Ellis, speaker of the House, as an assistant, to carry local strength on the first ballot. In the convention there was no choice on the first ballot, but on the second Col. Quinby was barely nominated by accessions from the Ellis forces, on Sept. 17. In spite of this defeat, the "reform" element was so strong that the platform of 1906 was repeated, with even more drastic recommendations. Among these were demands for a direct primary law; for the abolition of free passes, and for a readjustment of the scheme of taxing corporations.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention met at Concord on April 21. It was conceded that the sentiment of the party was for William H. Taft

as candidate, but it was deemed inadvisable to instruct the delegates, a majority of whom openly declared Taft preference. A motion declaring the sentiment for Taft was voted down, prominent members of the Taft Club opposing it. Resolutions were adopted in favor of necessary tariff revision. The Democratic State Convention to choose national delegates met at Concord on May 27. A platform of party principles was adopted, and the delegates were instructed to vote for William J. Bryan for president. (For the result of the Republican Convention for the nomination of State officers, see the paragraph above.) The Democratic Convention for the same purpose met at Concord on Sept. 25. Judge George H. Bingham, of Manchester, was nominated for governor, but he at length declined to be the candidate. C. E. Carrs was nominated. A platform was adopted advocating the abolition of the legislative lobby, the initiative and referendum, direct primaries, and other measures. The "hypocrisy of the Republican party in nominating a railroad candidate on a reform platform" was denounced. In the election of Nov. 3, the State was carried for Taft by about 20,000 plurality, while Quinby was elected governor by a majority of about 700. The detailed figures are as follows: Taft, 53,149; Bryan, 33,655; Chafin, 905; Debs, 1209; Hisgen, 583; Quinby, 44,630; Carrs, 41,486.

OTHER EVENTS. In March several large cotton mills in Manchester and Nashua reduced their production 10 per cent. on account of a falling off in demand. A fire in Berlin on Feb. 4 caused damage of over \$200,000.

STATE OFFICERS. Governor, Henry B. Quinby; Secretary of State, Edward N. Pearson; Treasurer, Solon A. Carter; Adjutant-General, Harry B. Cilley; Attorney-General, Edwin G. Eastman; Superintendent of Education, Harry C. Morrison; Secretary Board of Agriculture, Nahum J. Bachelder; Commissioner of Insurance, George H. Adams—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Frank N. Parsons, Rep.; Associate Justices, Robert J. Peaslee, Dem.; Reuben E. Walker, Rep.; John E. Young, Rep.; George H. Bingham, Dem.; A. J. Shurtleff, Rep.

The State Legislature of 1909 is composed of 20 Republicans and 4 Democrats in the Senate, 273 Republicans and 116 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

NEW HEBRIDES. A group of islands in the Pacific Ocean, northwest of Australia. Area, about 5100 square miles; population, between 70,000 and 100,000. At the end of 1905 there were 225 British and 417 French settlers. The principal exports are maize, bananas, copra, coffee, kauri-wood, and sulphur. There are several British and French trading companies. Steamers connect with Sydney, Australia; Nouméa, New Caledonia; and the Solomon Islands. The conventions of 1887 and 1888 between Great Britain and France, providing for the government of the islands by a joint commission, were superseded by the convention of Oct. 20, 1906, which went into effect on Dec. 1, 1907. Under this convention the citizens of the two countries enjoy equal rights in every respect. Citizens of other countries must choose between the two jurisdictions. No fortifications or penal settlements are to be established. Public services are

to be undertaken in common. Regulations were made as to lands and recruitment of native laborers. The sale of arms, ammunition, and intoxicating liquors to natives is forbidden. The expenditure for 1908 was estimated at £30,060, one-half being contributed by each of the two Powers. Each country maintains a Resident Commissioner, under whom are the two divisions of the police force, each of equal strength. The seat of the government is Vila, on the island of Efate.

NEW JERSEY. One of the Middle Atlantic Division of the United States. Its area is 8224 square miles, and its population, in 1908, according to federal estimate, was 2,300,427.

MINERAL PRODUCTION. Of the mineral products of New Jersey, clay products are first in value. In 1907 the value of these products was \$16,005,460, as compared with a value of \$17,362,269 in 1906. Of these products, brick and tile were manufactured to the value of \$9,019,834, and pottery to the value of \$6,985,626. New Jersey ranks third among the States in the manufacture of clay products, being surpassed only by Ohio and Pennsylvania. In the production of Portland cement New Jersey ranks second, being surpassed only by Pennsylvania. In 1907, 4,449,896 barrels, valued at \$4,738,516 were produced. The quantity produced in 1906 was 4,423,648 barrels, valued at \$4,445,364. The production of pig iron in 1907 was 373,189 long tons, as against 379,390 long tons in 1906. On Jan. 1, 1908, there were eleven blast furnaces in operation. In the production of mineral water this State showed a large increase in 1907 over the figures of 1906. In the former year there were sold 982,445 gallons, valued at \$105,082, a gain of 397,230 gallons in quantity, and of \$37,896 in value over the figures of 1906. The production of iron ore in 1907 was 549,760 tons, a slight increase over the production of 1906, which was 542,518 long tons. The stone products of the State were valued in 1907 at \$1,523,312, of which the trap rock produced was valued at \$995,436. The production in 1906 was valued at \$1,394,393. The zinc produced in 1907 was valued at \$1,601,614. Among other mineral products were sand and gravel, lime, and glass-sand. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$32,800,299, as compared with a value in 1906 of \$39,854,697.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 10,564,000 bushels, valued at \$7,289,000, from 278,000 acres; winter wheat, 1,868,000 bushels, valued at \$1,887,000, from 108,000 acres; oats, 1,842,000 bushels, valued at \$1,013,000, from 60,000 acres; rye, 1,264,000 bushels, valued at \$1,024,000, from 78,000 acres; potatoes, \$5,256,000 bushels, valued at \$4,678,000, from 73,000 acres; hay, 699,000 tons, valued at \$9,786,000, from 437,000 acres. There has been a tendency in recent years to replace staple farm crops by vegetable and garden products for the supply of numerous markets near which the State is advantageously situated. Fruits and garden truck are largely produced. Among farm animals, dairy cows are the most numerous. In 1908 they numbered 190,000. The esti-

mated value of the wool clip in 1908 was \$55,688.

MANUFACTURES. From the report of the State Board of Statistics for 1908, containing figures for 1907, the following data in regard to manufacturing in New Jersey are extracted: The total capital invested in the State in 1907 was \$729,549,849; the cost of material used, \$462,854,716; the selling value of the products was \$775,186,299; the greatest number of wage-earners employed during the year, 288,811; the average number employed was 280,280; of the wage-earners, 209,859, or 74.8 per cent., were men; 64,613, or 23.1 per cent., were women; and 5808, or 2.1 per cent., were children of both sexes under sixteen years of age. The amount paid in wages to wage-earners only was \$144,740,069. The average yearly earnings were \$517.24. The number of steam engines and other motors in use was 12,072, and the amount of horse power required, 543,359. The value of products of leading industries for 1907 was as follows: Machine shop and foundry products, \$69,665,637; petroleum refining, \$56,864,930; raw silk and ribbons, \$48,568,225; smelting and refining of copper, \$40,320,932; drawn wire and wire goods, \$36,530,847; chemical products, \$28,986,223; rubber products, hard and soft, \$24,482,073; crude products, \$23,713,129; woollen and worsted goods, \$22,826,850; leather, tanned and finished, \$22,756,658; tobacco and cigars, \$20,015,376; brewery products, \$19,313,693; soap and tallow, \$17,595,191; scientific instruments, \$16,462,621; electric appliances, \$15,679,458; hats, men's, \$11,005,025; high explosives, \$10,969,337; paper, \$10,723,971; jewelry, \$10,625,821; pottery, \$6,678,734. New Jersey ranks first in silk goods, copper smelting, and men's soft hats; second in petroleum refining, solid gold jewelry, and fourth in glass. The State also ranks second among the States of the Union in capital invested in manufacturing industry per capita (\$334) and in per capita value of the products (\$362); third in proportion of population (12.5 per cent.) engaged as wage-earners in manufacturing industries, and sixth in the value of the total product of manufactured goods. In the diversity of industries New Jersey is unsurpassed. The geographical position of the State had prepared the way for industrial growth, and the great development of steam and electric lines of railway has been a potent factor in bringing about the result already accomplished. The development of manufactures has also been increased by wise public policy pursued in all matters relating to or affecting industrial interests. In order to indicate the growth of industries in the last two years, it may be stated, according to the United States Census of 1905, which included only industries carried on in factories, the capital invested in manufactures was \$715,060,000. The average number of wage-earners was 266,336, and the value of products was \$774,369,000.

EDUCATION. The school laws were revised in 1903. The State Board of Education consists of two members from each congressional district, appointed for five years. This board appoints county superintendents. Cities have boards of education of nine members, and township, incorporated town, and borough school districts have boards of three to nine members. Attendance is compulsory for all children of ages 7 to 17, inclusive, during the entire school term, except in the cases of children above the

age of 15 years, who have completed the grammar school course and in addition thereto are regularly employed in some useful occupation or service. Text books are free. In 1904 provision was made for a State high school inspector. Manual training and industrial education have been provided in many towns and cities, the State appropriating for such schools in 59 different localities \$90,000 in 1907, and \$95,000 in 1908. The State also maintains the Manual Training and Industrial School for Colored Youth at Bordentown. New Jersey was the first State making provision for an old-age pension system for teachers. The first law, enacted in 1896, made participation in this plan voluntary, but a law of 1907 provided that the retirement fund act should be binding upon all who began to teach in the State public schools after Jan. 1, 1908. The report of the Superintendent showed that the total enrollment in public schools in 1908 was 402,866, and the average daily attendance, 289,167; the enrollment in kindergartens was 26,226; in primary grades, 242,197; in grammar grades, 114,236, and in high schools, 20,207. The teachers numbered 10,279, of whom 9173 were women. There were 558 teachers employed in evening schools in nine cities. The average yearly salary of all teachers was \$697.06. The average duration of the school term was 9.1 months. The total receipts for public school purposes in 1908 were \$17,693,858.03, of which \$1,909,957.55 was the balance from the preceding year, \$3,238,558.28 the State school tax, \$1,079,519.42 the amount appropriated from the State fund, and \$8,036,793.76 the amount of district taxes. The total expenditures were \$14,951,775.24, of which \$7,165,068.04 was for teachers' salaries, \$3,119,196.01 for maintenance and construction of buildings, and \$632,639.07 for text books and apparatus. The cost of education was as follows: Average cost per pupil, based on attendance, \$35.68. Number of school buildings, 1948; total value of school property, \$28,582,358; average value of New Jersey school buildings, \$14,673.

FINANCES. The report of the State treasurer for the fiscal year ending Oct. 31, 1908, shows a balance in the State fund on Nov. 1, 1907, of \$1,320,038. The total receipts were \$9,976,372, and the total disbursements were \$8,478,134, leaving a balance in this fund on Oct. 31, 1908, of \$2,818,216, to which is to be added securities to the value of \$188,700, making the total of the State fund on Oct. 31, 1908, \$3,006,976. The receipts from the State school tax for the fiscal year were \$3,238,558. The school fund had a balance Nov. 1, 1907, of \$146,974, and the receipts for the year were \$303,233, of which \$373,500 was used in the purchase of bonds. The chief receipts for the year were, from State tax on railroad corporations for 1908, \$3,229,924; from State tax on railroad corporations previous to 1908, \$2,645,331; from the federal inheritance tax, \$247,396.

CHARITIES AND CORRECTIONS. The Legislature of 1908 made an appropriation for the year ending Oct. 31, 1909, of \$1,282,525 for charities, \$666,042 for corrections, and \$105,850 for soldiers' homes, an aggregate of \$2,054,469. There are under institutional care in the State, 6408 in charitable institutions; 2646 in criminal institutions, and 733 in soldiers' homes. The Legislature of 1907 passed an act requiring societies and individuals bringing into the State

dependent children or otherwise to obtain the permission of the Superintendent of Charities and Corrections, with whom a bond of \$1000 must be filed that the children shall not become public charges. Several new buildings for the correctional and charitable institutions were erected during the year.

POLITICS AND GOVERNMENT. On Jan. 21, John Franklin Fort, who was elected in 1907, was inaugurated Governor of the State. On Jan. 7, the Court of Errors and Appeals handed down an opinion of great importance, sustaining the constitutionality of the various acts of the Legislature under which the taxes against railroads have been increased by between \$3,000,000 and \$4,000,000 annually. The decisions, with one exception, are a complete victory for the State and the system of railroad taxation provided by the various acts of 1905 and 1906. The attempt to pass a local option law for the State was defeated when the Assembly, on March 17, by a vote of 44 to 15 killed the Crosby bill. The bill had the aggressive support of the Anti-Saloon League of the State. An important measure which became a law was the act passed on April 10, providing for the appointment of a State Civil Service Commission. The bill had the active support of Governor Fort, and it was largely through his efforts that the bill was passed. The Legislature failed to act on the passage of the public utilities bill for the State which had been recommended by a Commission appointed in 1907 to report on such a measure. The first test of the new primary law of the State was held on Sept. 22. Under this law, candidates for office are nominated by direct vote of the people, without the use of conventions. State Senator Everett Colby, the leader of the "New Idea," a party which, in the last few years, has brought about much salutary legislation in the State, was a candidate for reelection, and about him the chief interest in the primaries was centred. He was largely responsible for the enactment of the law and opposed to him were the powerful corporate interests of the State, against whom he had fought for the enactment of regulating laws. In Essex county, which Mr. Colby represented in the Senate, he was given a majority of 7500, in a total vote of about 38,000. In addition to the nomination of Senator Colby, the "New Idea" candidates were largely successful. Five candidates for the Assembly were nominated and the candidate for the shrievalty of the county, the nomination for which had been hotly contested, was successful over his "regular" opponent. A feature of the election throughout the State was the general lack of interest in the local option question. The nominations made were for the State Legislature and for county and municipal officers.

Laxity in the enforcement of the excise law in Atlantic City in August resulted in a proclamation to the people of the State by Governor Fort on Aug. 27, in which he declared that if the excise law was not enforced on the following Sunday, he would call an extra session of the Legislature, and would, if necessary, place the city under martial law. The trouble arose from the refusal of the grand juries to find indictments against alleged offenders against the law. Following the summary action of the Governor, the laws were more rigidly enforced. On Nov. 5, Robert H. McCarter resigned from the office of Attorney-General of the State.

A committee appointed by Governor Fort to investigate the causes of dependency and crime in the State made its report on Dec. 15. The committee of eight was not unanimous in its views, and majority and minority reports were presented. One of the recommendations of the majority was to permit the sale of liquor on Sunday, this being in direct conflict with the views expressed by the excise investigating commission, also appointed by the Governor, which submitted its report on the same date. The commission recommended the abolition of all State boards of managers for institutions and the appointment of a commissioner of charities, who should be a specialist in all phases of the work of such institutions. The minority report dissented from the proposal to sell liquor on Sunday, contending that it should not be permitted under any circumstances.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention, was held at Trenton, on May 5. A strong effort was made to pass a resolution instructing the delegates for W. H. Taft, but this was unsuccessful, and they remained unpledged. On April 28, in one of the most turbulent conventions ever held in the State, the Democrats selected delegates to the National Convention unpledged to any candidate. In the election of Nov. 3, the Republicans carried the State for Taft by 82,776. Aside from the national issues, the chief interest centred about the vote for State Senator Colby (see above). He was defeated for reelection by 684 plurality. Mr. Colby's supporters charged that his defeat was due to a secret coalition between the Republican and Democratic leaders of the county. The detailed vote for national tickets was as follows: Taft, 265,298; Bryan, 182,522; Chafin, 4930; Debs, 10,249; Hisgen, 1916; Gilhaus, 1196.

LEGISLATION. Among important measures enacted by the legislative session of 1908 were those noted below. Stricter laws were enacted against anarchists. It was provided that any person who shall, in public or private, advocate by speech, writing, printing, drawing, or by any other method, the death of any person, or shall threaten to take or procure the taking of the life of any person, shall be guilty of high misdemeanor, and punished by imprisonment at hard labor for a term not exceeding 15 years, or for a fine not exceeding \$5000, or both. It also provides that any person who shall, in any way, advocate, encourage or justify the unlawful burning or the destruction of public or private property, or assaults on the Army of the United States, the National Guard or the police force in New Jersey or any other State, or the killing or injuring any class or body of persons, shall be guilty of high misdemeanor, and that any person or corporation printing or publishing or circulating, or aiding in such act, any printed matter advocating, justifying or tending to incite the unlawful burning or the destruction of public or private property, or any of the acts cited above, shall be guilty of high misdemeanor. Provision was made for the establishment of summer courses in agriculture, manual training, and home economics. A Live Stock Commission for the State was authorized for the purpose of promoting interest in the breeding of pure strains of domestic animals and the improvement of grade animals of the various breeds.

The State Board of Arbitration was abolished. Amendments were made in the laws relating to the hunting of game. A commission was appointed to investigate and report on the condition of the blind in the State and to recommend remedies by which their condition may be ameliorated. Stringent enactments were passed preventing the improper influencing of employees by offers of gratuities. A State Board of Vital Statistics was authorized. Several important measures were passed relating to corporations. An appropriation was made to the State Commission of Tuberculosis of Animals of \$25,000 for the prosecution of its work. Amendments to the Pure Food Law relating to export foreign markets were enacted. The laws relating to elections were amended, especially in regard to the use of voting machines. Two additional inspectors of factories, one a woman, were authorized.

A joint resolution was passed authorizing the government to return the government battle-flags found in the possession of the State. The Legislature authorized the construction of an inland waterway, extending from Cape May to Bay Head, along the coast, and appropriating the sum of \$300,000 for this purpose. A Department of Inland Waterways was established to investigate and report annually to the Governor the routes of the inland waterways of the State, the depth of water therein, the use thereof by traffic of business or pleasure, and to have general conduct of these waterways. Savings banks were authorized to retire on pension officers above the age of 70 years who have been in the employ of the bank continuously for more than thirty years. Measures were enacted forbidding the appearance of children in dance halls or concert saloons in the State. Acts were passed providing for the revision or consolidation of public statutes in the State. Measures were enacted forbidding the sale of cigarettes or cigarette paper or tobacco to minors under the age of 18.

STATE OFFICERS. Governor, John Franklin Fort; Secretary of State, S. D. Dickinson; Treasurer, Daniel S. Voorhees; Comptroller, Henry T. West; Attorney-General, to be named; Adjutant-General, R. H. Breintnall; Superintendent of Education, C. J. Baxter; Commissioner of Banking and Insurance, David O. Watkins—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, W. S. Gummere, Rep.; Justices, Charles W. Parker, Rep.; T. W. Trenchard, Rep.; Alfred Reed, Dem.; C. G. Garrison, Dem.; James J. Bergen, Dem.; Willard P. Voorhees, Rep.; James F. Minturn, Dem.; F. J. Swayze, Rep.; Clerk, William Riker, Jr., Rep.

Court of Errors and Appeals. Judges, J. W. Bogert, George R. Gray, Elmer E. Green, W. H. Vreedenburg, G. D. W. Vroom, Peter V. Voorhees; Chancellor, Wm. J. Magie and the Supreme Court Justices.

The State Legislature of 1908 was composed of 13 Republicans and 8 Democrats in the Senate, 45 Republicans and 15 Democrats in the Assembly. The State representation in Congress will be found in the article UNITED STATES under the section Congress.

NEW MEXICO. A Territory in the Southwestern part of the United States. Its area is 122,634 square miles. Its population in 1908, according to Federal estimate, was 223,332.

MINERAL PRODUCTION. The aggregate value of the mineral products of New Mexico in the year 1907 was \$7,517,843, which was a distinct advance over the value of the product of 1906, which was \$5,805,250. Coal is the most valuable of the mineral products of the Territory. In 1907, there were produced 2,628,949 short tons, valued at \$3,832,128, as compared with 1,964,713 tons, valued at \$2,638,986 in 1906. Copper ranks second in the value of its product, and the amount produced in 1907 shows a very satisfactory increase over that mined in 1906. In the former year there were produced 10,140,140 pounds, valued at \$2,028,028, as compared with 7,099,842 pounds in 1906, with a value of \$1,370,270. The other mineral products of the State are relatively unimportant in value. They include silver, valued at \$395,700 in 1907 and \$329,955 in 1906; stone, with a value of \$381,011 in 1907 and \$168,567 in 1906; clay products, lead, sand and gravel, tungsten, and zinc.

Owing to adverse conditions in the metal market, many copper, lead and zinc mines in New Mexico were closed in 1908, but at those where sufficient gold was found to mine at a profit, operations were not interrupted. The production of gold and silver was probably somewhat smaller in 1908 than in 1907. The Director of the Mint estimates the gold production of the Territory in 1908 as \$240,756, as against \$330,000 in 1907; and the silver production as 372,950 fine ounces, against 599,500 fine ounces in 1907. The coal mining industry in the Territory suffered more from decline in prices in 1908 than it did from the decrease in the tonnage, it being estimated that the values in 1908 would not exceed 75 per cent. of those of the preceding year.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, are as follows: Corn, 1,755,000 bushels, valued at \$1,404,000, from 65,000 acres; spring wheat, 1,025,000 bushels, valued at \$964,000, from 41,000 acres; oats, 804,000 bushels, valued at \$515,000, from 24,000 acres; barley, 42,000 bushels, valued at \$33,000, from 1000 acres; potatoes, 100,000 bushels, valued at \$90,000, from 1000 acres; hay, 336,000 tons, valued at \$3,192,000, from 168,000 acres. The acreage of wheat was slightly less than that of 1907, when it was 46,000. The acreage devoted to hay increased from 160,000 in 1907. The great increase in the agricultural development of the Territory in recent years is due to new irrigated areas. In 1908, about 200,000 acres were made available by new projects. (See IRRIGATION.) The number of sheep in the State is large. In 1908, they numbered 4,978,000. The wool clip was estimated at 16,500,000 pounds, New Mexico ranking fourth in its production.

MANUFACTURES. The total value of products manufactured in factories in 1905 was only \$5,705,880, but this was 40.5 per cent. greater than the similar value for 1900. The wage-earners in 1905 numbered 3478, or 39.7 per cent. more than in 1900. The values of leading industries in 1905 were: Railway shop work, \$2,509,800, and lumber and timber products, \$1,315,300. There are also some flour milling and printing and publishing plants and a few planing mills.

EDUCATION. The progress of education is greatly hampered by the sparseness of popula-

tion and the presence of two languages in general use. The approximate school population (ages 5 to 21), as given in the Governor's 1907 report, was 80,000, and the total enrollment was about 50,000. There were also several thousand enrolled in parochial and mission schools. There were employed a total of about 1000 teachers. The average length of school term in 1907-8 was 123 days. The estimated value of public school property was \$1,000,000, and the bonded indebtedness of public schools was \$533,911. The total expenditure for schools in 1907-8 was \$539,964.

FINANCE. The treasury held a balance of \$345,125 on June 1, 1907. The receipts for the fiscal year following were \$754,800, and the expenditures \$721,272, leaving a balance on June 1, 1908, of \$378,653. The principal source of revenue was the property tax. The Territorial debt, July 1, 1908, amounted to \$1,003,000, as compared with \$803,000 in 1907. The sinking fund held assets valued at \$64,989. The assessed valuation in 1908 was \$52,587,649.

POLITICS AND GOVERNMENT. There was no meeting of the Territorial Legislature in 1908. On Mar. 21, the Republican party of the Territory met in convention and instructed the delegates chosen to vote for W. H. Taft for president, and on June 10, the Democratic party took similar action on behalf of W. J. Bryan. The result of the election of Nov. 3, for delegate to Congress, was as follows: Andrews (Rep.), 27,605; Larrazolo (Dem.), 27,217; Metcalf (Soc.), 1056.

OTHER EVENTS. The Sacramento Valley Irrigation Co., which was constructing one of the largest irrigation systems in the Southwest, was placed in the hands of a receiver on Jan. 5. Several important irrigation projects were begun during the year. See **IRRIGATION**.

TERRITORIAL OFFICERS. Governor, George Curry, Rep.; Lieut.-Governor and Secretary of State, Nathan Jaffa, Rep.; Treasurer, J. H. Vaughn, Rep.; Auditor, W. G. Sargent, Rep.; Adjutant-General, A. J. Tarkington, Rep.; Attorney-General, James M. Hervey, Rep.; Supt. Education, J. E. Clark, Rep.; Com. of Insurance, Jacobo Chavez, Rep.; Com. of Agriculture, Robert P. Ervien.

JUDICIARY. Supreme Court: Chief Justice, William J. Mills; Associate Justices, John R. McFie, Ira A. Abbott, W. H. Hope, E. A. Mann, and F. W. Parker; Clerk, José D. Sena—all Republicans.

The Territorial Legislature of 1908 was composed of 9 Republicans and 3 Democrats in the Senate, 20 Republicans and 4 Democrats in the House. The Territorial representation in Congress will be found in the article **UNITED STATES**, under section *Congress*.

NEW ORLEANS ANT. See **ENTOMOLOGY**.

NEW SOUTH WALES. A State of the Australian Commonwealth. Area, 310,372 square miles; population at the end of 1906, 1,526,697. Sydney, the capital, had 538,800 inhabitants on the same date. For details regarding population, education, production, etc., see **AUSTRALIA**. The executive power is vested in a Governor, appointed by the Crown and acting through a responsible ministry. The Parliament consists of a legislative council, the members of which are appointed by the Governor for life, and number at present 56; and a legislative assembly of 90 members, elected for three years by universal suffrage, without distinction of sex. The present

Governor is Admiral Sir Harry Holdsworth Rawson, and the Premier, Charles Gregory Wade.

HISTORY. At a conference of the Labor party in January resolutions for the collective ownership of the means of production, distribution and exchange were rejected by a majority of 118 to 27. A special session of Parliament was opened by the Governor, Sir Harry Rawson, on Mar. 10, to act on the amendment of the Arbitration Act and to make some forfeited improvement leases available for settlement. For an account of the dissatisfaction caused by the working of the Arbitration Act, see **ARBITRATION AND CONCILIATION; LABOR**. The proposed changes were embodied in an Industrial Disputes Bill, which provided for the appointment for two years of a board for each industry, representing equally employers and employees, and having a membership not to exceed eleven, including the chairman. The boards should determine the rate of wages, hours of labor, overtime, etc., and their awards should be binding on both parties for periods of from one to three years. The bill was subsequently amended to provide a court of appeals from the decision of these wages boards and to declare specifically that the boards should decide the question of according preference to union labor. Among other measures proposed by the government later in the year were the acquisition of large areas for closer settlement and an amendment of the Crown lands law, prohibiting the conversion of leaseholds into freeholds. A strike of coal laborers occurred at Newcastle and Sydney, the main point being the question of employing free labor. The companies agreed to increase wages but not to dismiss non-union men or employ only unionists, and public opinion seemed to be on their side, favoring a compromise.

NEW YORK. One of the North Atlantic Division of the United States. Its area is 49,204 square miles. Its population, according to Federal estimates made in 1908, was 8,546,356.

MINERAL PRODUCTION. The total value of the mineral output of the State in 1907 was \$37,427,405, showing a small advance over the total for 1906, which was \$37,132,832, the largest recorded up to that time. The growth of the mineral industry in the State may be shown by the fact that in 1905 the figures of production were \$35,470,987 and in 1904 they were only \$28,812,595. Iron mining in the State has undergone an uninterrupted expansion during the past four years. The output for 1907 amounted to 1,018,013 long tons and exceeded that of any previous year since 1890. There were thirteen mines under exploitation or two more than in 1906 when the production was 905,367 tons. With the return of the iron market to normal conditions, it may be expected that the iron ore condition of New York will develop beyond all proportions of the past. The clay materials reported in 1907 represented an aggregate value of \$12,688,868. There was a decrease of \$1,266,432 from the amount returned for the preceding year, due to the smaller output in market values of building materials. The combined output of brick, tile, fireproofing, and terra cotta used for building purposes was valued at \$8,909,392 as compared with \$11,063,433 in 1906. The number of bricks made was 1,366,842,000. The decline in the output of building materials was counterbalanced in some degree by the gain in pottery manufactures,

which were valued at \$2,240,895 against a value of \$1,795,008 for the preceding year. Of the 61 counties of the State 43 were represented among the reports received in 1907 from the manufacturers of clay products. The value of the products of the quarries of New York in 1907 was \$7,890,327 against \$6,504,165 in 1906. The total was divided according to the various uses into building stone, \$2,208,545; monumental stone, \$162,359; curb and flag stone, \$1,064,193; crushed stone, \$2,812,988; other uses, \$1,642,232. The output of slate, millstone and limestone used in making hydraulic cement, is not included in these totals. The output of hydraulic cement in 1907 was 3,245,729 barrels, with a value of \$2,971,820. The salt production of the State for 1907 amounted to 9,657,543 barrels as compared with 9,013,993 barrels in 1906, thus continuing the progress that has been for some time a feature of this industry. The value of the output was \$2,449,178, exceeding that of 1906 by \$317,528. Other mineral products of importance in 1907 were gypsum, 323,323 short tons; petroleum, estimated at 1,052,324 barrels; natural gas, 3,052,145,000 cubic feet; pyrite, 49,978 long tons; talc, 59,000 short tons; garnet, 5,709 short tons; crystalline graphite, 2,950,000 pounds.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 24,350,000 bushels, valued at \$19,400,000 from 625,000 acres; winter wheat, 7,752,000 bushels, valued at \$7,674,000 from 443,000 acres; oats, 637,625,000 bushels, valued at \$21,070,000 from 1,250,000 acres; barley, 2,002,000 bushels, valued at \$1,401,000 from 77,000 acres; rye, 2,392,000 bushels, valued at \$2,938,000 from 145,000 acres; buckwheat, 6,827,000 bushels, valued at \$5,189,000 from 319,000 acres; potatoes, 34,850,000 bushels, valued at \$26,138,000 from 425,000 acres; hay, 5,717,000 tons, valued at \$70,033,000 from 4,764,000 acres; tobacco, 7,257,975 pounds, valued at \$689,508 from 6,107 acres. The State ranks first in the production of potatoes, hay, and buckwheat, and fourth in the production of rye. The potato crop decreased in 1908 from 41,748,000 bushels in 1907. The hay crop also suffered a slight decrease, the production in 1907 being 5,896,000 tons. The production of buckwheat increased in 1908 over the figures of 1907, which were 5,687,000 bushels. The number of farm animals in the State Jan. 1, 1909, was as follows: Horses, 710,000; dairy cows, 1,789,000; other cattle, 898,000; sheep, 1,165,000; swine, 669,000. The wool clip in 1907 was estimated at 5,100,000 pounds, valued at \$1,158,500.

MANUFACTURES: New York is by far the greatest manufacturing State in the Union. The Federal census of 1905, which included only establishments classed as factories, reported \$2,031,459,000 capital, 856,947 wage-earners, and \$2,488,345,000 in value of products, these figures showing increases, 1900 to 1905, of 33.3, 17.9, and 32.9 per cent., respectively. The wage-earners included 245,449 women and 7979 children under 16. The number of children was only three-fifths as large as in 1900. The value of products of leading industries in 1905 and (in parentheses) the per cent. of increase from 1900 to 1905 were as follows: Men's clothing, \$173,548,000 (32.2); women's clothing, \$167,-

167,000 (62.4); sugar and molasses refining, \$116,439,000 (28.4); foundry and machine shop products, \$115,876,000 (19.9); newspapers and periodicals, \$85,756,740 (36.2); slaughtering, \$73,218,000 (27.5); malt liquors, \$61,958,000 (10.4); bakery products, \$61,033,000 (41.8); cigars and cigarettes, \$60,623,600 (23.7); flour and grist mill products, \$54,546,000 (51.6); book and job printing, \$50,061,000 (59.4); hosiery and knit goods, \$46,108,600 (28.5); planing mill products, \$4,779,600 (37); paper and wood pulp, \$37,750,600 (41.3); electrical machinery and apparatus, \$35,348,000 (55); illuminating gas, \$35,315,000 (68.8); boots and shoes, \$34,137,000 (33.4); millinery and lace goods, \$32,844,000 (56); cheese, butter, and condensed milk, \$31,047,700 (16.9); iron and steel, \$29,862,000 (115); men's furnishing goods, \$29,337,000 (slight increase); chemicals, \$29,090,000 (81.9); furniture, \$28,110,700 (18.9); roasting and grinding coffee and spices, \$26,995,000 (20); fur goods, \$26,244,000 (65.8); musical instruments, \$23,389,500 (58.6); leather, \$21,643,000 (6.7 per cent. decrease); tinsmithing, copper-smithing, and sheet iron working, \$20,960,000 (52.9); shirts, \$20,241,600 (9.5 per cent. decrease), and silk and silk goods, \$20,181,000 (58.8). Ten different branches of textiles were reported among the 61 leading industries, with products valued at \$123,668,000, or 31.3 per cent. more than the value in 1900. In addition to the foregoing the following industries showed products valued at more than \$15,000,000 in 1905: Structural iron work, carpets and rugs, paints, confectionery, railway repair shops, and patent medicines and compounds, and the following exceeded \$10,000,000 in value: Soap and candles, marble and stone work, cotton goods, lumber and timber products, agricultural implements, fancy and paper boxes, carriages and wagons, lithographing and engraving, jewelry, canning fruits and vegetables, food preparations, and bookbinding and blank book making. The values for petroleum refining, copper smelting and refining, and the manufacture of locomotives were not reported, in order to avoid disclosure of individual operations. The rank of leading cities is shown by their respective values of products in 1905: New York, Manhattan and Bronx boroughs, \$1,043,252,000; Brooklyn, \$373,463,000; other boroughs, \$109,808,000; Buffalo, \$147,377,800; Rochester, \$82,747,000; Syracuse, \$34,823,700; Yonkers, \$33,548,700; Schenectady, \$33,084,000; Troy, \$31,860,800; Utica, \$22,880,000, and Albany, \$20,208,700.

EDUCATION. The report of the State Commissioner of Education for the fiscal year ending June 30, 1908, shows a total expenditure for education from June 30, 1907, to June 30, 1908, of \$73,151,114. For elementary education there was expended \$48,464,769, an increase of \$1,387,049 over the expenditure of 1907. For teachers' salaries was expended \$27,059,038; for building sites, etc., \$13,119,838; for school apparatus, \$128,644; for school libraries, \$169,823. There were registered in the State, 1,272,495 between the ages of 5 and 18, an increase of 14,478 over the registration of 1907. The average daily attendance was 995,916, or 78.3 per cent. of the enrollment, an increase of 1.2 per cent. There were employed 38,404 teachers, of whom 3,443 were men and 34,961 women. The average annual salary was \$748.89, a decrease of \$7.21. The value of school buildings, including sites, was \$167,456,592, an

excess of more than \$15,000,000 beyond any previous record, and \$14,230,214 was expended for new buildings, improvement, etc. Twenty-three cities maintain evening schools, which were attended by 133,781 pupils, of whom 82,277 were males and 51,504 were females.

The total amount expended for secondary schools during the year was \$9,142,938, of which \$6,971,985 was for high schools and \$2,170,953 was for private academies. There were 681 high schools of two grades and 159 academies. The whole number of academic students was 107,419, including 95,170 in high schools, 7,563 in academies and 4,686 in the preparatory departments of colleges. The total number of teachers in the secondary schools was 4,994, of whom 1,823 were men and 3,175 were women. 57 per cent. of the money expended for their tuition was paid to schools and colleges of less than 2,000 inhabitants, showing that the State is rapidly placing the high school within the reach of every farm or rural home. A division has been established to promote the organization of trade schools, or public trade or vocational schools, and plans have been prepared for opening such schools in five cities. One such school was opened in Rochester, and another was to open in the same place on Feb. 1, 1909, and another in Albany on March 1, 1909. A number of others will open at the beginning of the next school year.

There were in the colleges, universities, professional and technical schools of the State, 37,659 students, an increase of 1,091. The teaching force was 4,276, as against 3,996 in 1907. There were conferred 4,037 degrees, 3,008 to men and 1,029 to women. The property value of these institutions is reported at \$121,927,406. The receipts for their maintenance was \$13,848,681, a decrease of \$2,459,028 over the figures for 1907.

FINANCE. The report of the State Treasurer for the fiscal year 1908 showed the total aggregate receipts for the year, \$59,049,595. The aggregate expenditures were \$48,036,091. On Oct. 1, 1907, there was a balance in the treasury of \$20,771,571, leaving a balance Oct. 1, 1908, of \$31,785,076. Of the revenue, \$6,605,480 was received from inheritance tax; \$8,937,635 from corporation taxes; \$9,359,330 from excise taxes; \$3,907,373 from stock transfer tax. Of the disbursements \$6,079,122 were for education; \$5,919,434 for the State care of the insane hospitals; \$2,216,842 for hospitals and charitable institutions; \$6,501,431 for public highways; the total payments for canals was \$7,236,348.

CHARITIES AND CORRECTIONS. There are fourteen charitable institutions subject to the visitation and inspection of the State Board of Charities. These are: State Agricultural and Industrial School at Industry; Syracuse State Institution for Feeble-Minded Children, Syracuse; New York State School for the Blind, Batavia; Thomas Indian School, Iroquois; State Custodial Asylum for Feeble-Minded Women, Newark; New York State Soldiers' and Sailors' Home, Bath; New York State Training School for Girls, Hudson; Western House of Refuge, Albion; New York State Reformatory for Women, Bedford; Rome State Custodial Asylum, Rome; Craig Colony for Epileptics, Sonyea; New York State Woman's Relief Corps Home, Oxford; New York State Hospital for the care of Crippled and Deformed Children, West Haverstraw; New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis, Ray-

brook. The receipts for these institutions for the fiscal year ending Sept. 30, 1908, including balance on hand at the beginning of the year amounted to \$1,854,492, and their expenditures aggregated \$1,786,878. The total number of their beneficiaries was 10,601. In addition to the fourteen State charitable institutions above mentioned, two or more are established but not yet in operation. These are the New York Training School for Boys and the Eastern New York State Custodial Asylum. In addition to these State institutions there are ten schools and institutions under private management, but mainly supported by State appropriations. Receipts for these institutions for the fiscal year were \$1,571,689 and their expenditures aggregated \$1,402,538. The total number of their beneficiaries was 3,332. The number of persons in institutions receiving public money, subject to the visitation and inspection of the State Board of Charities, was 75,847 on Sept. 30, 1908. During the year 57,592 persons received temporary outdoor relief in the cities of the State and for this purpose \$395,438 was expended. See CHARITY ORGANIZATION.

The Psychiatric Institute of the State Hospitals for the Insane is situated on Wards Island, in connection with Manhattan State Hospital, and is under the Directorship of Adolf Meyer. The number of insane inmates in the various hospitals at the close of the fiscal year, Sept. 30, 1908, was as follows: Utica, 1269; Willard, 2327; Hudson River, 2759; Middletown, 1766; Buffalo, 1929; Binghamton, 2087; St. Lawrence, 1858; Rochester, 1345; Gowanda, 996; Kings Park, 3139; Long Island, 737; Manhattan, 4491; Central Islip, 3645; Matteawan, 733; Dannemora, 340. Total, 29,421. There were also 1,035 patients in the private hospitals licensed by the Commission in Lunacy, making a grand total of 30,456 patients. The total expenditure for maintenance was as follows: Officers' salaries, \$258,296; employees' wages, \$1,741,828; provisions and stores, \$1,654,652; ordinary repairs, \$83,487; farms and grounds, including live stock, \$110,031; clothing, \$163,775; furniture and bedding, \$116,775; books and stationery, \$25,507; fuel and light, \$604,743; medical supplies, \$32,260; miscellaneous, \$137,897; transportation of patients, \$25,490; making a total of \$4,953,635. The receipts from partly or fully reimbursing patients amounted to \$350,713. The Commissioners are Albert Warren Ferris, M. D., Sheldon T. Viele, and William L. Parkhurst.

POLITICS AND GOVERNMENT. The most notable event in the local political history of the State was the passage on June 10 of the laws prohibiting gambling at race tracks in the State. The struggle for the passage of this bill began, in active form, on Jan. 1, when Governor Hughes in his message to the Legislature urged the enactment of such measures. Gambling was carried on at the race tracks under the so-called Percy-Gray law which, while it ostensibly forbade betting on horses, made such betting only a misdemeanor, with a penalty so inadequate that the law was seldom invoked, and gambling at race tracks was practically unrestrained, though it was forbidden under heavy penalties in any other place. The amendment of this law was demanded by Governor Hughes in the interest of public morality. The racing interests had great strength politically and financially in the State,

and this was brought to bear against the amendment of the law. Opposed to the Governor, too, were nearly all the Democratic legislators, together with a strong element in his own party who, from various motives, were not in favor of the anti-gambling laws. The measures were not strongly opposed in the Assembly, where they passed by a substantial majority. The chief struggle came in the Senate. There, where there was a vacancy caused by the sickness, and subsequent death, of Senator Franchot (Rep.) of the Niagara Falls district, the vote was a tie, when the bill was called up on April 8. Two Democrats voted for it and eight Republicans against it. The vote was 25 to 25. This result did not kill the bill, but placed it in a position where it might be called up again whenever a majority could be secured for such action. Such a condition was impossible, and the session adjourned on April 23, without further action.

Immediately after the adjournment, Governor Hughes issued a call for an extraordinary session of the Legislature to convene on May 11. In his message, at the convening of this session, Governor Hughes made no reference to the race track, except to promise a later message in relation to it. On May 12, an election was held in the district composed of Orleans and Niagara counties to fill the vacancy in the Senate caused by Senator Franchot's death. William C. Wallace, who had pledged himself to vote for the bills in case of his election, was successful by a small majority over his Democratic competitor. On June 8, Governor Hughes transmitted to the Legislature a special message in which he again urged the passage of the bill. The scene in the Senate when the bill came up for action on June 10 was one of the most dramatic in the legislative history of the State. It was known before the voting that the defeat or passage of the measures depended on the absence or presence of one man, Senator Foelker (Rep.) of Brooklyn, who had voted for the bill at the regular session, but was seriously ill when the extra session was called. He was known to be still in favor of the bill. Acting against the advice of his physicians he insisted on being present, and his vote was the decisive one in the passage of the bill. The final vote taken on June 11 was 26 to 25. It is significant of the public sentiment in favor of these measures that the eight Republicans who voted against it were, almost without exception, defeated for reelection by their constituents, while Senator Foelker was elected to the House of Representatives on Nov. 3.

This victory of Governor Hughes, in the face of extraordinary opposition, gave him a strong hold on the Republican party of the State, and made him an important national figure. It did not, however, win for him popularity with the political leaders of his party in the State, who resented his aggressive independence, and his total disregard of their wishes in distributing the patronage of the State.

Governor Hughes was not so successful in his attempts to have Otto Kelsey removed from the office of Superintendent of Insurance. This was one of the first things he undertook to accomplish at the beginning of his term in 1907. The Senate, however, refused to accede to his wishes to remove Kelsey from office. On February 11, 1908, Governor Hughes sent a message to the Sen-

ate calling for Kelsey's removal, but that body, on Feb. 26, by a vote of 30 to 19, again refused to take such action.

In February the State Court of Appeals handed down an important opinion upholding the constitutionality of the Public Service Commissions law, passed in 1907. The act, however, was condemned as to that part which provides for a readjustment in three years in not giving to the companies an equal right with the consumers to complain. The court held that a statute like the one considered, to be valid, should confer equal rights on both parties, the consumer and the company. In the case at issue the Saratoga Gas Co. questioned the validity of the act.

On Mar. 6 the Court of Appeals decided that ballot boxes in the disputed mayoralty election of 1905 in New York City might be opened. Governor Hughes, on May 7, approved the revision of the State Military code so as to conform the organization of the National Guard to that of the regular army. The constitutionality of the apportionment act, passed by the Legislature in extraordinary session in 1907, by which new Senate districts were created, was sustained by Justice Fitts of the Supreme Court on July 31. The judge held that when the Court of Appeals nullified the apportionment act of 1906, it became mandatory upon the Legislature of 1907 to pass an act in its place, and it was immaterial whether the act was passed at a regular or an adjourned session.

A commission was appointed by Governor Hughes in December to investigate and make reports upon the operation of the Stock and other Exchanges, and the general subject of speculation in stocks. The commission is composed of well-known business men and economists.

On Dec. 21 the Supreme Court of the United States affirmed the validity of the New York Mortgage Law, thus affirming the judgment of the Supreme Court of the State.

On Dec. 2, Governor Hughes approved the revised classification of places in the State and county service, with a few exceptions. This action removes from political patronage many of the most profitable offices in the State. Among the departments affected are the Executive Department, Insurance Department, Prison Department, Excise Department, State Public Works Department, New York State Public Service Commission, Up-State Public Service Commission, Forest, Fish and Game Commission, and the State Fair Commission.

NEW YORK CITY. A commission to revise the charter of the city was appointed by Governor Hughes on April 21. This body has the power of a legislative committee to inquire into the operations of the various city governments, and to draw up a revised charter to submit to the Legislature of 1909. Investigations were carried on during the year. On Feb. 27, W. F. King and a committee of the minority stockholders of the Metropolitan Street Railway Company petitioned Governor Hughes to remove District Attorney William T. Jerome for dereliction of duty in failing to prosecute cases in which the railway company was involved and for other reasons. Mr. Jerome, on Mar. 9, filed with Governor Hughes an answer to these charges, in which he denied them categorically, and accused the petitioners of mendacity and insincerity. On Mar. 16, Governor Hughes ap-

pointed Charles Andrews, formerly a judge of the Court of Appeals, to conduct a hearing on the charges made. After several weeks, Judge Andrews was unable to proceed on account of other duties, and Richard L. Hand was appointed in his place. The investigation continued for many weeks, and voluminous testimony was taken on both sides. On Aug. 24, Mr. Hand sent to Governor Hughes a report, in which Mr. Jerome was completely exonerated, and his accusers were severely criticised.

As a result of the decision of the Court of Appeals noted in the paragraph above, a recount of the ballots cast in the mayoralty election of 1905 was begun on April 13. In that election the contestants were George B. McClellan and William R. Hearst. Mr. McClellan was elected by a majority of less than 3,000 votes, in a total vote for both of nearly 450,000. Mr. Hearst claimed gross frauds, and he, through the courts, fought for a recount through the years following. The result of the recount, which occupied months, was that Hearst received gains of 1,094 votes, and McClellan gains of 231, leaving net gains for Hearst of 863. The jury, by the direction of Judge Lambert of the Supreme Court, declared Hearst's charges unfounded, and that McClellan was elected by a plurality of 2,791 votes.

Investigations were carried on during the year various city departments by the Commissioners of Accounts, as the result of evidence prepared by the Bureau of Municipal Research. The conduct in office of the presidents of two boroughs, Haffen of the Bronx and Bermel of Queens, was assailed. Charges against both for misconduct were sent to Governor Hughes by Mayor McClellan. Mr. Bermel resigned before the charges could be passed upon and Lawrence Gresser was chosen to succeed him, at a special election. The charges against Mr. Haffen had not been acted upon by Governor Hughes at the close of the year. A state of demoralization and corruption was found in the City License Bureau, which has charge of the issuing of licenses to peddlers, and for musical and other performances. The head of the Bureau was suspended from office, pending investigation. The surface railroads of the city continued to remain in the hands of receivers during the year. The Third Avenue road, which had been held jointly by the receivers of the New York City and the Metropolitan Street Railway Companies, was given a separate receiver by the United States Circuit Court. A very general suspension of transfer privileges on the part of the receivers of the various roads caused much inconvenience and dissatisfaction to those who used the lines. The efforts of the Public Service Commission to establish a system of transfers met with no success. The Hudson River tunnels from the shopping district of New York to New Jersey were finally opened for traffic on Feb. 25, and the great terminal buildings downtown were completed in readiness for the opening of the tunnels to that point. The tunnels constructed by the Pennsylvania Railroad across the North River were dug through on April 10, making it possible to walk underground from Long Island City to New Jersey. The bridge from Manhattan to Long Island City, across Blackwell's Island, known officially as the Queensboro Bridge, was practically completed and substantial pro-

gress was made in the construction of the new Manhattan Bridge. See BRIDGES.

The city budget for 1909 contained amounts aggregating \$156,000,000, as against \$143,000,000 in 1908. In connection with this there was held, under the auspices of the Bureau of Municipal Research, a Budget Exhibit, where was shown many instances in which, by laxity or corruption, the city was defrauded. The Knickerbocker Trust Co., whose suspension in October, 1907, precipitated the panic of that year, reopened for business in March. Charles W. Morse, who was one of the chief figures in the financial crisis of 1907, was convicted in the Federal Court on Nov. 6 of misapplying the funds of the Bank of North America, of which he was a director, and was sentenced to 15 years' imprisonment. A. H. Curtis, former president of the bank, was also found guilty, but his sentence was suspended by the court. On Mar. 28 a body of unemployed attempted to hold a meeting in Union Square. They were prevented by the police, and an avowed anarchist, named Selig Silverstein, exploded a bomb, which killed a man sitting beside him and terribly injured himself. He afterwards died of his injuries.

On Jan. 11, fire caused a loss amounting to \$6,000,000, and on Nov. 1, another fire destroyed property valued at \$2,500,000. A system of high-pressure water supply, installed during the year, promises to give much more efficient control of fires than the old system. See FIRE PROTECTION. At a city bond sale held in February, the offering of \$500,000,000 4½ per cent. bonds was over-subscribed six times, and the average price bid was 104, as compared with 102 bid in the sale of September, 1907. Several new subway routes were planned and authorized by the Public Service Commission, but the condition of the city's finances did not permit of any expenditures for the beginning of new routes. One of the routes projected is a short one across town, but the other extends from the Battery to Pelham Bay Park.

CONVENTIONS AND ELECTIONS. The announcement by Governor Hughes on Jan. 21, that he was a candidate for the Presidency, complicated the Republican politics of the State. With the party leaders, as noted above, he was not popular, and the sentiment was against him in the party councils. His strong position in the State, and the prominence he had attained as a national figure, made it impossible for the leaders to ignore him, and his candidacy was endorsed by the Republican State Committee on March 7. At the State Convention to choose delegates to the National Convention, held on April 11, the delegates selected were instructed to vote for Governor Hughes for President. The Democratic State Convention to choose national delegates was marked by a bitter contest between the Tammany organization, led by Charles F. Murphy, and the Kings County Democracy, the organization of Brooklyn, under the leadership of State Senator P. H. McCarran, over the seating of the delegates from Brooklyn, who were hostile to Tammany Hall. By a vote of 325 to 89 it was decided that the delegation should not be seated. This was another incident in the bitter struggle that was waged for years over the control of the Brooklyn Democracy, which has, so far, remained independent of Tammany Hall. The delegates to the National Convention were uninstructed,

though strong efforts were made to have instructions given for Mr. Bryan.

It was generally considered that Governor Hughes did not wish to serve another term as Governor, and his announcement, made on July 24, that he would be a candidate for a second term came as a surprise. The attitude of the State leaders indicated their feeling for Mr. Hughes and his policies. They were, almost without exception, non-committal, when they were not frankly outspoken against him. Beyond his formal announcement, Governor Hughes himself did nothing to further his chances for renomination. Public sentiment, however, manifested itself so strongly in favor of him in all sections of the State that at the State Convention held at Saratoga on Sept. 15, he was renominated by an overwhelming majority on the first ballot. On the day following the Democrats in State Convention nominated Lewis S. Chanler, the Lieutenant-Governor, for Governor. The campaign was one of the most spirited in the history of the State. Mr. Chanler, personally, was a strong candidate, and made an aggressive canvass. Governor Hughes was in such demand in the national campaign that, until the first part of October, he could devote but little time to the State issues. In the final weeks, however, he visited every section of the State, delivering speeches of great strength and conviction. His success seemed dubious, even to his most ardent supporters, in the face of the powerful factions against him, and the result of the election of Nov. 3 was as surprising to his adherents as to those who opposed him. The State was carried for Mr. Taft by a plurality of over 200,000. The City of New York, where is the chief Democratic strength of the State, was won by the Republicans by a small plurality. Governor Hughes carried the State by a plurality of about 70,000, though New York City was carried by Chanler by about 60,000. The detailed vote for national and State tickets was as follows: Taft, 870,070; Bryan, 667,468; Debs, 38,451; Hisgen, 35,817; Gillhaus, 3,877. Hughes, 804,651; Chanler, 735,189; Shearn (Ind.), 33,994; Wauhope (Soc.), 43,212.

LEGISLATION. The regular legislative session of 1908 differed from that of 1907 in that it did not enact a single important measure recommended by Governor Hughes. Among the measures passed were the following: A three-platoon police bill, applying to cities of the first and second class; measures amending the banking laws of the State (see **BANKS AND BANKING**); a bill prohibiting the operation of bucket shops in the State; a bill providing for an investigation of the financial condition of the New York City government; amendments to the excise law, making the laws more stringent; a bill providing for the appointment of a commission to inquire into the condition of aliens landing at New York City, and to advise means to aid them; an act authorizing an appropriation of \$250,000 from the race track receipts for the agricultural societies to conduct their fairs; an act authorizing New York City to acquire lands to carry into effect a sewage disposal system; a measure providing for the registration of cases of tuberculosis in the State. The Hart-Agnew anti-racing bills, whose passage is noted above, were enacted at the special session convened on May 11.

STATE OFFICERS. Governor, Charles E. Hughes; Lieutenant-Governor, Horace White;

Secretary to the Governor, Robert H. Fuller; Secretary of State, Samuel S. Koenig; Comptroller, Charles H. Gaus; State Treasurer, Thomas B. Dunn; Attorney-General, Edward R. O'Malley; State Engineer and Surveyor, Frank M. Williams; Commissioner of Education, Andrew S. Draper; Superintendent of Insurance, William H. Hotchkiss; Superintendent of Banking Department, Clark Williams; Superintendent of State Prisons, Cornelius V. Collins; Superintendent of Public Works, Frederick C. Stevens; President, State Commission in Lunacy, Albert Warren Ferris; Public Service Commission, Chairman First Division, William R. Willcox; Chairman Second Division, Frank W. Stevens.

NEW YORK ACADEMY OF SCIENCE.

An Association incorporated in 1818 as the Lyceum of Natural History in the City of New York, which was exchanged in 1876 for the present name. In 1902 the Academy was empowered by legislative enactment to obtain funds and erect a building for scientific uses. The Academy held its annual meeting Dec. 21, 1908. It has in its keeping the Esther Hermann Building Fund and the John Strong Newberry Fund for the encouragement of scientific research. The Academy's Library, which is domiciled at the Museum of Natural History, is free to the public. The Academy has 450 active members. The President in 1908 was Charles F. Cox; Recording Secretary, E. Otis Hovey; Corresponding Secretary, Henry E. Crampton.

NEW YORK, COLLEGE OF THE CITY OF. An institution of higher learning in New York City, founded in 1847. The attendance in 1908 was 4383, about one-eighth of whom were of the collegiate grade. The library contains 39,000 volumes. The college is a part of the educational system of New York City and is supported by appropriations from the city. On May 14th the new buildings of the university on Washington Heights were dedicated with imposing ceremonies. These buildings were constructed for the college by the city. The President is John H. Finley.

NEW YORK PUBLIC LIBRARY. A public institution founded in 1895 by the consolidation of the Astor Library, the Lenox Library, and the Tilden Trust. The library includes, besides the Astor and Lenox library buildings, 41 branch libraries throughout the city. These compose the circulating department of the New York Public Library. During 1908, 289,546 visitors and readers visited the reference branches (Astor and Lenox). There were received during the year 29,337 volumes and 65,679 pamphlets. The total number available for readers was 758,918 volumes and 283,075 pamphlets, a total of 1,041,993 pieces in the reference department. In the branches were 680,244 volumes, making a total number of pieces in the whole library, 1,722,237. From the fund of \$5,200,000 given in 1901 by Andrew Carnegie for that purpose, 28 branches have been constructed. In 1908 work was carried on for the building of three more. The circulation for the calendar year was 6,504,402, an increase of 1,014,158 over the calendar year 1907. Among the special features of the library are travelling libraries, maintained for schools, for police and fire departments, for charitable institutions and for the blind. A training class for the preparation of librarians is also conducted. Special

children's libraries are maintained in most of the branches. The construction of the new library building at Fifth Avenue and 42d Street, which was begun in 1902, had progressed in 1908 to such an extent that the exterior was practically completed and the completion of the interior was well under way. It was expected that the building would be ready for occupancy in 1911.

NEW YORK UNIVERSITY. An institution of higher learning in New York City, founded 1830. The enrollment for 1908-1909 is as follows: Arts 509, Law 770, Commerce 882, Medicine 461, Pedagogy 608, Graduate 282, Applied Science 223, Summer School 626, Woman's Law Class 46; total, excluding names counted twice, 4118. Of the above number 1000 have been instructed at University Heights, 461 at the Medical Buildings, First Avenue between 25th and 26th Streets, and the remainder in the University Building at Washington Square, where was the original site of the University. In the year 1908 for the first time in a score of years the ordinary sources of revenue fully met the ordinary expenses of the University, including under ordinary revenue the stated subscriptions for current support but not including any legacy or gifts for permanent property. After conference with various representatives of the alumni of the University Schools, the corporation has accepted a plan for securing alumni participation in the choice of its members. The plan establishes an Alumni Electorate in four groups numbering respectively about 12,000; 2,000; 10,000; 1,600. Every alumnus may qualify in the group to which he belongs by an annual payment of \$2. Any alumnus who gives the University \$100 in one payment becomes a life member. Each group may have a member of the Council for each fifth of its members who qualify up to four-fifths; thus it will be possible for the four groups to nominate sixteen members, or one-half of the entire corporation. Final vote on the plan was to be taken by the corporation in February. The tuition receipts for the year 1907-8 were over \$300,000. The chancellor is H. M. McCracken.

NEW YORK ZOÖLOGICAL SOCIETY. A private scientific society, having for its purpose the establishment of a zoölogical park and the preservation of American animals. On Mar. 24, 1907, the Society entered into a contract with the City of New York to establish and maintain a zoölogical park in a portion of the south end of Bronx Park, consisting of 261 acres of land, comprising open glades, forest lands and lakes, which now constitutes the New York Zoölogical Park. The Park in area and in the elaboration of its buildings is the largest and most highly developed park in the world. The collections belong to it and are supplied by the New York Zoölogical Society and comprised, on Aug. 1, 1908, 5,078 specimens, the largest number of any collection of the world, and includes 996 species, being the fourth largest in the world. The attendance in 1908 was nearly 1,500,000. The Society completed during the year a new elephant house, costing, with its yards, nearly \$200,000, and forming the most complete and elaborate animal building in the world. A fine collection of elephants and rhinoceroses has been installed in this building. The Society also manages and controls the New York

Aquarium, and through its efforts has built up the largest and most complete aquarium in the world. It is the only institution of its kind that attempts to maintain in the temperate zone tropical collections by means of heated sea water, which is brought in from the open ocean at great expense and filtered, aerated and heated in a large receiving tank. The attendance at the Aquarium during the year 1908 was over 2,000,000. The Society has taken an active part in the protection of American animals. In the interest of the preservation of the American bison, a herd of 15 bison was presented to the government and, through the efforts of the Society, established in the Wichita Forest Reserve in Oklahoma in 1908.

NEW ZEALAND. A British colony in the South Pacific, consisting of North Island (44,468 square miles), South Island (58,525 square miles), Stewart Island (665 square miles), and the Chatham, Cook, Kermadec, and other minor islands. Total area, 104,751 square miles. On April 20, 1906, the total population, excluding Maoris, was 888,376 (470,891 males and 417,845 females), of whom 476,891 were on North Island, 411,258 on South Island, 288 on Stewart Island, 197 on Chatham Islands, and 5 on Kermadec Islands. The Maoris numbered 47,731 (25,538 males and 22,193 females).

On June 30, 1908, the total population was estimated at 1,000,882. In 1907 there were 8192 marriages (8.91 per 1000 mean population), 25,094 births (27.30 per 1000), and 10,066 deaths (10.95 per 1000). The arrivals and departures in 1907 were 36,108 and 30,378 respectively. The principal cities, with their populations (including suburbs) as estimated at the beginning of 1908, are: Wellington, the capital, 70,947; Auckland, 89,577; Dunedin, 59,495; Christchurch, 73,462; Invercargill, 13,419; Palmerston North, 11,299; Napier, 10,115.

EDUCATION. Public education is free and secular. In 1907 the government primary schools were attended by 140,320 pupils, and private primary schools by 19,324. There are over 100 Maori schools, with 4300 pupils. Of secondary schools there are 8, with 4300 pupils, besides industrial, normal, art, and mining schools. The University of New Zealand is an examining body, with which are affiliated Otago University at Dunedin, Canterbury College at Christchurch, Lincoln College, Auckland University College, and the Victoria College at Wellington.

PRODUCTION. The total value of the mineral production to the end of 1907 was £100,523,086, to which gold contributed £71,528,978; silver, £1,090,751; copper, £18,823; tin, £101; coal, £13,485,259. The value of the mineral production of 1907 was £3,775,835, to which gold contributed £2,027,490; silver, £169,484; copper, £595; tin, £101; coal (1,831,009 tons), £965,766. The gold export in 1908 was 506,447 ounces; silver, 1,731,366 ounces. Rich iron ore has been found in the form of ironsand and brown hematite.

In 1907 the area of public lands alienated or in process of alienation was 26,462,809 acres; the area leased, 17,859,180 acres; neither alienated nor leased, 22,539,451 acres (including 9,000,000 acres of native lands). The total area under cultivation in 1907-8 was 1,873,635 acres, of which 1,824,363 was under crops. The area under artificially sown pasture was 13,125,753 acres. The area and production of the principal crops in

the 1907-8 season were: Wheat, 193,031 acres and 5,567,139 bushels; oats, 386,890 acres and 11,606,700 bushels; barley, 36,177 acres and 1,049,133 bushels; maize, 8880 acres and 503,301 bushels; potatoes, 27,035 acres and 142,999 tons; hay, 80,435 acres. Other crops are: peas, beans, tobacco, vegetables, etc. Orchards and vineyards occupy over 27,000 acres. In 1907 horses numbered 252,832; cattle, 1,816,299; sheep, 20,983,772; pigs, 241,128. Agricultural and dairy products are important exports. The wool production in 1907-8 was 148,560,000 pounds, against 148,169,000 pounds in 1906-7. The sales of wool in 1907-8 were 132,349 bales, of about 334 pounds each—a considerable reduction from the previous season, due to the fall of prices in October, 1907.

A calculation made by the Registrar-General of New Zealand, based on a study of the probable returns for a series of years, showed that the amount of private wealth in 1906 was £304,654,000, or £335 10s. per head of population, against £156,058,273, or £232 per capita, in 1893, and £229,587,916, or £291 per capita, in 1901. The value of public property in 1906 was £62,041,000, consisting of Crown lands, £18,918,000; local authorities' lands, £5,851,000; educational lands, £4,646,000; church and other lands, £3,292,000; railways, £24,092,000; other public works, £5,142,000.

FOREIGN COMMERCE. The imports and exports of merchandise in 1907 amounted to \$80,493,240 and \$97,633,319 respectively, against \$69,608,761 and \$87,563,403 in 1906. The imports and exports of specie in 1907 amounted to \$4,114,016 and \$35,005 respectively. The principal imports in 1907 were: Articles of dress, \$17,416,189 (including apparel and slops, \$3,746,452; boots and shoes, \$1,415,159; cotton piece goods, \$3,523,243; drapery, \$2,989,987; woollens, \$2,307,793); implements, tools, machinery, and iron and steel, \$16,089,600; (hardware, \$2,226,709; iron and steel, \$5,959,744; machinery, \$3,735,342); sugar, \$2,771,430; tea, \$1,306,972; beer, wine, spirits, and tobacco, \$3,921,507; paper, books, and stationery, \$3,146,753; coal, \$1,038,436; drugs and chemicals, \$1,657,110; fruits, \$1,938,194; manures, \$1,142,396; oils, \$1,516,748; timber, \$1,317,747. The principal exports of home produce in 1907 were: Butter, \$7,861,346; cheese, \$3,223,461; gold, \$9,867,118; kauri gum, \$2,822,122; frozen meats, \$16,647,231; phormium, \$4,049,397; skins, \$4,227,045; tallow, \$2,730,030; sawn and hewn timber, \$1,517,728; wool, \$37,265,420. The trade with the principal countries of origin and destination was as follows:

From and to	Imports	Exports
Great Britain.....	\$50,019,692	\$80,462,998
Australia.....	15,220,757	10,810,131
Canada.....	1,047,462	379,673
Other British possessions.....	6,430,710	1,267,065
Germany.....	1,711,285	323,579
United States.....	6,937,899	3,475,106
Other foreign countries.....	2,839,451	950,372

In 1908 imports amounted to about £17,000,000, showing a slight increase, and exports amounted to about £16,000,000—a decrease of about £3,750,000 from 1907.

COMMUNICATIONS. The shipping entered and cleared in 1907 was 2,347,612 tons, of which 132,036 was foreign. The merchant marine in 1906 consisted of 291 steamers, of 136,612 tons, and 317 sailing vessels, of 43,512 tons. The

length of State railways at the end of 1907 was 2474 miles. The railway receipts during 1907 were £2,761,938; expenditure, £1,949,759; net revenue, £812,179; interest on loans, £911,372; leaving a deficit for the year of £99,193. There are also 113 miles of private railway. The length of telegraph line in 1907 was 8948 miles.

FINANCE, ETC. In 1907-8 the revenue was £9,063,989; and the expenditure £8,213,965. The public debt on March 31, 1908, stood at £66,453,897, and the sinking fund at £2,928,930. The military force in 1908 consisted of 362 in the permanent militia, 5209 volunteers (3528 mounted infantry, 1238 artillery, and 389 engineers), 5768 members of rifle corps, 3080 members of cadet corps, 3332 members of rifle clubs, and 406 others. New Zealand contributes £40,000 annually to the maintenance of the British squadron in Australasian waters (see AUSTRALIA). The Governor in 1908 was Lord Plunket. The Prime Minister was Sir Joseph George Ward. In September, 1908, it was reported that important changes were contemplated in the organization of the judiciary. It was proposed to constitute an appeal court, consisting of the chief justice and two other judges, the other three judges, with one new appointment, to constitute the supreme court.

HISTORY.

LABOR CONDITIONS. Among other labor difficulties there was a serious strike in the Blackball Company on account of the dismissal of seven men. It was significant as illustrating the breakdown of the arbitration law. The strikers, on being urged to return to work and let the arbitration court decide the quarrel, refused on the ground that they had no faith in the court's fairness. The court imposed a fine but the strikers refused to pay it. Under the law this exposed them to the penalty of imprisonment, but the Premier opposed this course, favoring an amendment of the arbitration law. The strike was finally settled by mutual agreement. The attitude of the strikers toward the arbitration court was generally approved by the laboring class throughout the country. In reply to criticisms based on New Zealand's labor troubles, and directed against the government labor policy, which, it was alleged, had resulted in the restraint of trade and the discouragement of investors, the Minister of Labor contrasted the private wealth of the Colony in 1890 with that in 1906. In the former year it was 142,632,000 but in the latter it had risen to 304,650,000. See ARBITRATION AND CONCILIATION, LABOR.

IMPORTANT PARLIAMENTARY MEASURES. The Parliamentary session of 1907 which ended late in November of that year had been the longest on record. Its chief measures were the land and tariff acts, the increase of the graduated tax, the establishment of national endowments for old age pensions and education, and the further restriction of Chinese immigration by an educational test in addition to the existing £100 poll tax. Parliament reopened on June 29, 1908. Among the proposed measures were the amendment to the arbitration law, the establishment of the second ballot system in elections, the granting of annuities available for all classes, and the superannuation of employees in certain industries. As to strikes, the Premier declared that some measure must be passed that would deal with them effectively, the pres-

ent arbitration law being clearly of no avail. The new bill modifying radically the existing law was brought in early in July. As finally passed, it replaced the existing Conciliation Boards by Councils of Conciliation, composed of two salaried commissioners, under whom each side would appoint three assessors; mutual agreement to have the force of an award. It also provided that 20 per cent. of the wages should be kept back by the employers until fines fixed by the Conciliation Councils were paid. The measure was criticised by the Opposition on the ground that compulsory arbitration had done only harm. (See **ARBITRATION AND CONCILIATION**; **LABOR**.) The second ballot and public superannuation acts were also passed. The latter provided for triennial valuation and extra government subsidies to maintain the fund. In October, Parliament voted to increase the colony's annual quota to the imperial navy from \$200,000 to \$500,000. Complaint of the government's labor policy continued. The New Zealand Employers' Federation held that the labor legislation combined with the low prices had killed the flax-milling industry. It was argued that a State policy which regulated the cost of production when it could not regulate the selling price was necessarily fatal to industries. See **OLD AGE PENSIONS**.

THE ELECTIONS. At the outset of the campaign in October the Premier declared the policy of the government to be the promotion of industrial development, a cessation of legislation, and a good administration of land settlement. He opposed the idea of compulsory military training as needless and burdensome, and favored the improvement of the voluntary system as the proper policy to pursue. The elections were held on November 17. The results showed a change of feeling toward the government, and the Opposition declared that at last the tide had turned. In the last Parliament the government could count on a majority of 42, but were now sure of only 15, which, however, with the 4 Maori members to be elected would be 19. One second ballot was still undecided at the close of the year. The liquor question played a large part in the campaign, both sides spending a large amount of money on advertising, lectures, etc. Mass meetings were held and the prohibition feeling was very strong. As a result "no license" prevailed in 12 districts, showing a steady gain in the "no license" vote.

OTHER EVENTS. In July a great congress was opened, organized by the new Maori party and consisting of Maori representatives for the purpose of improving the condition of the natives. A warm welcome was accorded to the American fleet, which arrived at Auckland on August 9, and a banquet was given in its honor at Government House. See **CANADA**, paragraph on "All Red" Route.

NIAGARA FALLS. During a shut-down of the power plant of the Niagara Falls Power Company, which took place on June 14 and which caused the closing of the canal of the Niagara Falls Hydraulic and Manufacturing Company, which supplies power to consumers on the American side of the Falls, examinations were made by U. S. Engineers and showed that the elevation of the surface of the Niagara River rose only 1-10 of an inch. This seems to be direct evidence for the fact that, at least so far,

the tapping of the Niagara River above the Falls has had little appreciable influence upon the volume which passes over them. For geology of Niagara Falls and River, see **GEOLOGY**.

NICARAGUA. A republic of Central America. Area, 49,552 square miles; population (1906), about 600,000, nearly all Indians or mixed. In 1907 there were 20,339 births (10,613 males, 9,726 females), 7,657 deaths, and 2,522 marriages. The principal cities, with their estimated populations, are: Managua, the capital, 35,000; León, 45,000; Granada, 25,000; Bluefields, 15,000; Masaya, 15,000; Chinandega, 12,620. The elementary schools had 25,363 pupils in 1905. There are ten colleges. The universities at León and Granada, with faculties in law and medicine, have been consolidated.

PRODUCTION. The gold output amounts to about \$1,000,000 a year. There are also some silver mines. Other minerals are lime, marble, jasper, copper, coal, and oil. The forest products include timber and dyewoods, copaiba, tolu, Peruvian balsam, sarsaparilla, ipecacuanha, China root, serpentaria, and other medicinal plants. Gums and resins are abundant, and the native camphor tree is said to yield a product equal to that produced in the Far East. Vanilla and senna grow freely. The rubber export amounted to 449,609 pounds in 1905, 408,329 pounds in 1906, and was estimated at 350,000 pounds in 1907—the reduction in the last year being due to damage caused by the hurricane in the fall of 1907. The production of refined sugar during the year ending June 30, 1907, amounted to 3,505,752 kilos (of 2 1-5 lbs. each). The by-products consisted of 1,837,179 liters (1 liter = 1.76 pints) of molasses, 1,712,188 kilos of crude sugar, 490,265 liters of aguardiente, and 200,000 liters of alcohol. The Bluefields Steamship Company owns 125 banana plantations, employs 5,000 workmen, and ships 2,000,000 bunches annually to New Orleans. The Kukra River Planting Company has taken up about 15,000 acres on the Atlantic coast for banana plantation. The coffee production for 1907-8 was estimated at 137,500 Spanish quintals (of 101 pounds each), or about 49,000 quintals less than in 1906-7. In October, 1908, the estimate of the 1908-9 coffee crop was 166,000 quintals. Other products are cacao, tobacco, and cotton, besides maize and rice for local consumption. Tobacco growing is regulated by the government, and the revenue therefrom has been leased for a period of 24 years from January 1, 1908, for 500,000 pesos annually. (In July, 1908, the peso was worth about 39.3 cents.) The sale of native spirits, a government monopoly, was leased for six years from January 1, 1904, for a payment of 1,341,000 pesos a year during the first two years and 1,420,000 pesos a year during the following four years. From January 1, 1908, the sale and importation of matches have become a government monopoly.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1906 amounted to 3,408,830 and 4,231,048 pesos respectively. The principal exports were: Coffee, 8,808,280 kilos, valued at 1,375,679 pesos; 1,401,595 bunches of bananas, valued at 700,069 pesos; gold bullion, 527,423 pesos; gold amalgam, 343,546 pesos; 296,103 kilos of rubber, valued at 385,472 pesos; 3,373,963 kilos of mahogany, valued at 284,321 pesos; 11,087 head of cattle, valued at 33,044 pesos; hides, 120,367 pesos; coconuts, 90,953 pesos;

silver coin, 44,220 pesos; sugar, 23,467 pesos; cedar, 41,465 pesos. About two-thirds of the foreign trade is with the United States. According to United States returns the imports from Nicaragua in the fiscal year 1908 amounted to \$1,160,832, and the exports to Nicaragua, \$1,574,879. In November, 1908, monetary exchange rose to 950, — 400 points above the normal rate. This caused a great depression in trade. The principal ports are Bluefields and Corinto. There are 171 miles of national railway, which have been leased to a private company since 1903, and are operated in connection with steamboat navigation on the lakes, and 20 miles of private railway on the Atlantic coast. There are 3,150 miles of telegraph wire.

FINANCE, ETC. The revenue and expenditure for 1907 were estimated at 10,219,048 and 10,286,519 paper pesos respectively. The external debt in 1907 consisted of the English debt, £242,500; the American debt, \$1,000,000; and the French debt, 12,500,000 francs. The internal debt stood at the end of 1904 at 12,378,808 paper pesos. The President in 1908 was J. Santos Zelaya, whose term is 1906-1912.

Military service is compulsory between the ages of 17 and 55, the period of active service being one year. The active army consists of 4,000 men in time of peace, and 40,000 men can be mobilized for war.

HISTORY. In January, 1908, commercial treaties with Belgium and Italy were negotiated. A convention was concluded with Great Britain, in which the latter recognized Nicaraguan sovereignty over the Mosquito Reservation. The uprising in Honduras (q. v.) caused President Zelaya to increase the Nicaraguan army and, according to report, also to arm a number of refugees from Salvador. Subsequently he filed charges against Guatemala and Salvador with the Central American Court of Justice at Cartago, Costa Rica, but his claims were rejected as without proper foundation (see **CENTRAL AMERICA**). In March the President appointed the minister and consul-general to France as members of the Hague Court of Arbitration. A five-year concession was granted to a Mexican, to introduce Chinese and Japanese plantation laborers. The concession was conditioned on the establishment within a year of a line of steamers between Far Eastern and Central American ports.

NICHOLS MEDAL. See **CHEMISTRY, INDUSTRIAL**.

NICKEL. A small amount of nickel and cobalt occurs with lead ores found in southeastern Missouri and in Oregon, but for practically its entire supply the United States depends upon imports which come either from the Sudbury District in Ontario or from New Caledonia. In 1908 the output of the Sudbury mines was estimated as under that of 1907, when it amounted to 10,972 tons, and competent authority placed it at about 10,000 tons. New ore deposits were beginning to be developed during the year in the Sudbury District and work was begun on deposits along the northern range, some of which are as large if not larger than those of the south: The construction of the Moose Mountain branch of the Canadian Northern railways put excellent shipping facilities at the disposal of these new enterprises, while the development of water power on the Wahnapiet River for use in the mines was being considered.

The Ontario production of nickel in 1907 was larger than the combined production of the other deposits of the world. The production of nickel in ore and matte in Ontario, since 1901, is as follows:

PRODUCTION OF NICKEL IN ONTARIO, 1901-7,
in SHORT TONS.

Year	Ore smelted	Matte obtained	Nickel in matte
1901	270,380	45,134	4,441
1902	233,388	24,691	5,347
1903	209,030	13,832	6,253
1904	118,470	8,924	5,274
1905	257,421	17,388	9,438
1906	340,059	20,364	10,745
1907	358,076	22,041	10,095

The operators of New Caledonia felt very severely the competition of the Canadian mines in 1907 and the nickel ore exports showed a considerable decrease. The cobalt exports showed an increase, but this was said to be due to the shipment of ore mined in 1906.

The ore exported from New Caledonia during the five years 1903-7 is shown in the following table:

QUANTITY OF NICKEL AND COBALT ORE SHIPPED
FROM NEW CALEDONIA, 1903-7, IN
SHORT TONS.

Year	Nickel ore	Cobalt ore
1903	80,865	9,140
1904	108,747	9,881
1905	138,106	8,729
1906	144,057	3,070
1907	112,112	4,345

The imports for consumption of nickel into the United States for 1902-7 were as follows:

IMPORTS OF NICKEL FOR CONSUMPTION INTO THE
UNITED STATES, 1902-7.

Year	Nickel, nickel ore and matte, nickel oxide, alloys of nickel with copper, etc.		Value of manufactured articles of nickel	Total value
	Pounds.	Value.		
1902 ..	33,942,710	\$1,407,521	\$30,128	\$1,437,649
1903 ..	36,217,985	1,456,605	37,284	1,493,889
1904 ..	19,739,315	1,118,541	2,950	1,121,491
1905 ..	31,072,206	1,958,840	3,291	1,962,131
1906 ..	34,082,042	1,867,568	8,963	1,876,531
1907 ..	18,598,638	2,233,867	9,159	2,243,026

As nickel is used extensively to increase the hardness and toughness of steel it was evident that the depression in the steel industry would result in a lessened demand for the metal during 1908 and such proved to be the case.

NITROGEN. See **CHEMISTRY, INDUSTRIAL; FERTILIZERS.**

NOBEL PRIZES. These prizes were established from a fund of \$8,400,000 left by Dr. Alfred Bernhard Nobel for the purpose of award-

ing annual prizes to those "persons who shall have contributed most materially to benefit mankind during the year immediately preceding." The prizes are distributed in accordance with statutes signed by King Oscar of Sweden, January 29, 1900. The value of each prize now amounts to about \$38,000, a considerable portion of the income being absorbed in the administrative expenses and scientific investigations of the committees. The stipulation that the award should be for achievements of the preceding year has been, to a large extent, disregarded, as in many cases the life work of the recipients had been accomplished and its value recognized by the world long before the establishment of the foundation. The prizes in science and literature are given at Stockholm, and the prize for peace at Christiania on the anniversary of the death of the founder on December 10, on nominations submitted before February 1st preceding. The right to make nominations is bestowed upon members of the Swedish academies, members of corresponding academies of other countries, professors holding proper chairs in Scandinavian and certain foreign universities, recipients of Nobel prizes, and other persons of distinction. The prizes awarded since the foundation of the fund, including the awards of 1908, are given in the table below:

THE RECIPIENTS OF THE NOBEL PRIZES.

Name	Year	Nationality
<i>Physics</i>		
Wilhelm Konrad Röntgen.....	1901	German
{ H. A. Lorentz.....	1902	Dutch
{ P. Zeeman.....	1902	
Henri Becquerel.....	1903	French
{ Pierre Curie.....	1903	French
{ Madame Sklodowska Curie.....	1903	Polish
Lord Rayleigh.....	1904	English
Philipp von Lenard.....	1905	German
Joseph J. Thomson.....	1906	English
Albert A. Michelson.....	1907	American
Gabriel Lippman.....	1908	French
<i>Chemistry</i>		
Jakobus H. van't Hoff.....	1901	Dutch
Emil Fischer.....	1902	German
Svante Arrhenius.....	1903	Swedish
Sir William Ramsay.....	1904	English
Adolph von Baeyer.....	1905	German
Henri Moissan.....	1906	French
Edward Büchner.....	1907	German
Ernest Rutherford.....	1908	English
<i>Medicine</i>		
Emil Behring.....	1901	German
Ronald Ross.....	1902	English
Niels R. Finsen.....	1903	Danish
Ivan Petrovitch Pavlov.....	1904	Russian
Robert Koch.....	1905	German
{ Camille Golgi.....	1906	Italian
{ Santiago Roman y Cajal.....	1906	Spanish
Charles Alphonse Laveran.....	1907	French
{ Paul Ehrlich.....	1908	German
{ Elie Metchnikoff.....	1908	Russian
<i>Literature</i>		
Armand Sully-Prudhomme.....	1901	French
Theodor Mommsen.....	1902	German
Bjørnstjerne Bjørnson.....	1903	Norwegian
{ Frédéric Mistral.....	1904	French
{ José Echegaray.....	1904	Spanish
Henry Sienkiewicz.....	1905	Polish
Giosuè Carducci.....	1906	Italian
Rudyard Kipling.....	1907	English
Rudolph Eucken.....	1908	German
<i>Peace</i>		
{ Henri Dunant.....	1901	Swiss
{ Frédéric Passy.....	1901	French
{ Elie Ducommun.....	1902	Swiss
{ Albert Gobat.....	1902	Swiss
William R. Cremer.....	1903	English
Institute of International Law.....	1904	International
Bertha von Suttner.....	1905	Austrian
Theodore Roosevelt.....	1906	American
{ Louis Renault.....	1907	French
{ Ernesto T. Moneta.....	1907	Italian
{ K. F. Arnoldson.....	1908	Swedish
{ M. F. Bajer.....	1908	Danish

NODZU, MICHITSURA, Marquis. A Japanese general, died on October 10, 1908. He was born at Satsuma on November 30, 1840, of a Samurai family, and early entered the military service. He served in the Imperial Army during the civil war of 1877 and reached the rank of lieutenant-general in 1885. During the war with China in 1894-95 he commanded the Fifth Division and later the entire army in the field. At the beginning of hostilities he forced the passage of the Yalu River after inflicting a severe defeat on the Chinese at Ping-Yang. He was made a Count of the Empire for his services and at the beginning of the war with Russia in 1904 was sent to Korea in command of the Fourth Army. He again forced the passage of the Yalu and later took a principal part in the defeat of the Russians at Liao-Yang after a desperate battle lasting five days. His army formed the Japanese centre at the battle of Mukden and his stubborn defense of his position was an important contributing cause to the Japanese victory. He was made a Marquis and Field Marshal for his services in Manchuria and at the time of his death was a member of the Council of Marshals of the Empire. His chief characteristics as a commander were his dogged tenacity and his willingness to sacrifice men if results were to be attained thereby. In private life he had the simple dignity and courtesy of the Samurai clan to which he belonged.

NORTH CAROLINA. One of the South Atlantic Division of the United States. Its area is 52,426 square miles. The population, according to Federal estimate made in 1908, was 214,498.

MINERAL PRODUCTION. From a report prepared by the State Geologist were taken the following facts relating to the mineral production of North Carolina in 1907. Notwithstanding the financial condition and general business depression there was a decided increase in the total value of the production of minerals in the State during that year over 1906. In the two products in which a falling off might have been expected, stone and clay products, there was a decided increase in value as compared with the previous year. The value of clay production in 1906 was \$1,182,660, while in 1907 it was \$1,316,308. The value of stone products in 1906 was \$854,302, while in 1907 it was \$958,919. In metallic minerals there was a slight increase in the production of gold, silver, and iron, but a decided decrease in the production of copper. The latter was due to the sharp decline in the price of copper during the latter half of 1907, which resulted in the closing down of nearly all the copper mines in the State. As to the non-metallic minerals there was a slight increase in the production of mica, for which the State is especially noted, and in talc and soapstone. The production of monazite, however, which had been steadily increasing since 1906, showed a very large decrease which was due to the low value of thorium nitrate, which is the commercial salt derived from monazite. The total value of the mineral production of the State in 1907 was \$3,176,105, as compared with \$3,007,601 in 1906. The value of the production of the leading metals and minerals was as follows: Mica, sheet, 1907, \$209,956; 1906, \$205,756; mica, scrap, \$15,250, 1907, \$11,940 in 1906; gold, \$82,195, 1907, \$122,008, 1906; silver, \$14,299, 1907, \$30,944, 1906; copper, \$116,416,

1907, \$135,829, 1906; iron, \$113,488, 1907, \$75,638, 1906; talc and pyrophyllite, \$74,347, 1907, \$66,979, 1906, sand-lime brick, \$38,808, 1907, \$32,975, 1906; kaolin, \$35,505, 1907, \$90,036, 1906; monazite, \$54,824, 1907, \$125,910, 1906. Among other minerals produced were zircon, pyrites, and graphite. Mineral water was produced in 1907 to the value of \$40,302, and in 1906, \$31,413. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$2,961,381, as compared with a value in 1906 of \$3,062,847.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 50,166,000 bushels, valued at \$39,631,000 from 2,787,000 acres; winter wheat, 5,680,000 bushels, valued at \$6,078,000 from 568,000 acres; oats, 3,300,000 bushels, valued at \$2,079,000 from 200,000 acres; rye, 125,000 bushels, valued at \$122,000 from 14,000 acres; buckwheat, 82,000 bushels, valued at \$164,000 from 5,000 acres; rice, 15,120 bushels, valued at \$15,120 from 600 acres; potatoes, 1,975,000 bushels, valued at \$1,521,000 from 25,000 acres; hay, 262,000 tons, valued at \$3,537,000 from 175,000 acres; tobacco, 134,000,000 pounds, valued at \$14,070,000 from 200,000 acres. The production of tobacco increased materially in 1908 over the figures of 1907, which were 100,875,000 pounds, while the acreage increased in the former year from 161,400. North Carolina ranks second in the production of tobacco, being surpassed only by Kentucky. The cotton crop in 1908 was estimated at 619,000 bales as compared with 652,000 bales in 1907. The maximum of the cotton crop was 712,218 bales in 1904-5. The cultivation of rice has practically ceased in the State, and larger areas are being devoted to early gardening for northern markets. The number of farm animals on January 1, 1909, was as follows: Horses, 192,000; mules, 179,000; dairy cows, 294,000; other cattle, 404,000; sheep, 222,000; swine, 1,398,000. The estimated value of the wool clip in 1908 was \$202,130.

MANUFACTURES. The progress between the census of 1900 and that of 1905 was very rapid. The figures for 1905, including only establishments classed as factories, were: capital invested, \$141,000,600; wage-earners, 85,339; value of products, \$142,520,700. These three items exceeded the corresponding ones of 1900 by 106.5, 18, and 67.1 per cent. respectively. Of the wage-earners, 18,301 were women, and 11,632 were children under 16, these numbers being respectively 21.3 and 13.9 per cent. greater than in 1900. The value of products of leading industries and the percentage gain over 1900 (in parentheses) were: Cotton goods, \$47,354,000 (66.5); chewing and smoking tobaccos and snuff, \$25,488,700 (87.1); lumber and timber products, \$15,731,000 (28.6); flour and grist mill products, \$6,863,700 (46); furniture, \$6,181,600 (300); cottonseed oil and cake, \$3,748,800 (40); planing mill products, \$3,402,400 (17.6); fertilizers, \$3,098,600 (107); and tanned and finished leather, \$2,662,100 (77). Cigars and cigarettes and hosiery and knit goods showed slightly smaller values. North Carolina has attained to third place in the manufacture of cotton goods and second place in the manufacture of chewing and smoking tobacco, being exceeded by Massachusetts

and South Carolina in the former and by Missouri in the latter. The number of active cotton spindles increased from 1,113,432 in 1900 to 1,880,950 in 1904, 2,604,444 in 1907 and 2,944,404 in 1908. The consumption of cotton in the mills in 1908 was 609,305 bales. The principal centres were accredited with the following values in 1905; Winston, \$11,353,000; Charlotte, \$4,849,600; and Wilmington, \$3,155,400.

FISHERIES. The latest exact data for fisheries in North Carolina were published in 1905 and are for the year 1902. At that time there were reported 14,755 persons engaged in the industry, \$1,973,441 invested, and products valued at \$1,739,661. The most valuable catches were: Shad, \$334,808; oysters, \$268,363; mullet, \$187,642; squeteague, \$156,247; striped bass, \$113,631, Carteret and Dare counties. The North Carolina Fish Commission, which was established in 1907 estimates that the value of the production of 1908 would be an increase of about 10 per cent. of the figures for 1902. This is true also, in a general way, of the other figures given above.

EDUCATION. The report of the superintendent of public instruction for the fiscal year 1907 showed a total school population of 709,609, as against 706,528 in 1906. The white school population in 1907 was 479,195, as against 475,477 in 1906. The colored school population was 230,414, as against 231,051 in 1906. The total enrollment in all schools for 1907 was 483,927, as against 483,180 in 1906. The white enrollment in 1907 was 332,962, as against 330,780 in 1906. The colored enrollment was 150,965, as against 152,400. The total average daily attendance of 1907 was 296,952, as against 293,046. The white average daily attendance was 208,157, as against 205,517. The colored average daily attendance in 1907 was 88,795, as against 87,529 in 1906. The total number of teachers employed in 1907 was 10,146, as against 9,871 in 1906. The white teachers numbered in 1907, 7,438, the colored teachers 2,708. The average annual amount paid to each teacher in 1907 was \$152.94. The average monthly salary of white teachers in 1907 was \$33.60. The average salary of colored teachers in 1907 was \$25.40. The total expenditure for public schools in 1907 was \$2,453,790.82.

FINANCE. The report of the treasurer for the biennial period 1907-8 showed a balance in the treasury on December 1, 1906, of \$405,955. The receipts for the fiscal year 1907 were \$2,603,292 and for 1908 were \$2,886,439, making the receipts for the two years \$5,469,732. The total disbursements for 1907 were \$2,655,262, and for 1908, \$2,605,954, making the total disbursements for the period \$5,261,237. The largest receipts are from taxes on insurance companies, from dividends of the North Carolina Railroad, from the railroad property tax, from State prison earnings, and from county taxes. The chief disbursements are for education, for the State prison, interest on debt, and for pensions.

CHARITIES AND CORRECTIONS. Improvements were made in many of the charitable and correctional institutions of the State in 1908. At Raleigh Hospital a wing for 100 patients was added, and a contract given for another wing to accommodate 100. Several buildings were erected for the epileptic insane. At Morgantown Hospital, a nurses' home was erected, which leaves room for 100 more patients in the main building. One cottage costing \$5,000 was built at the Stonewall Jackson school, and land was bought for a Tuberculosis Sanitarium. The

annual appropriation for Confederate soldiers' pensions was \$400,000. A law passed in 1907 requires the compulsory education of white deaf and blind children in the State.

POLITICS AND GOVERNMENT. There was no regular meeting of the State legislature in 1908, but on January 8 Governor Glenn issued a call for a special session to amend the railway rate law passed in 1907. On March 23 the United States Supreme Court declared this law unconstitutional. (See **RAILWAYS.**) The most important political event of the year in the State was the election on May 26, which directed that there should be prohibition in the State after June 1, 1909. The issue was the ratification or rejection of the law passed at the special legislative session of 1907. The State voted to ratify the measure by a majority of about 40,000, and on June 19 Governor Glenn issued a prohibition proclamation. In April a suit was begun in the United States Circuit Court at Asheville to determine whether or not the United States owns all the land in the eight western counties of the State. The basis of the government's claim is that the State, before the adoption of the Federal Constitution, made a treaty granting all this land to the Cherokee Indians. This was done under the articles of Federation, under which the State had treaty-making powers. After the adoption of the constitution, it is claimed, the United States obtained the property from the Indians, by treaty, in exchange for lands in Indian Territory, now Oklahoma. North Carolina treated this cession as restoring the State's rights, and granted the lands to settlers, on which grants the present holders base their claims. The government proposes to make the land a National Forest, leaving holders of improved property in peaceable possession. The area includes the forest reserve of G. W. Vanderbilt, comprising over 50,000 acres.

CONVENTIONS AND ELECTIONS. The Republican State Convention met and selected delegates to the National Convention, instructed to vote for W. H. Taft, and in convention at Charlotte, August 27, nominated J. P. Cox for governor. On July 29 the Democrats selected delegates instructed to vote for W. J. Bryan for president, and nominated W. W. Kitchin for governor. Mr. Kitchin was a Representative of the State in Congress. In the election of November 3 he was elected by a plurality of about 37,000, and the State was carried for W. J. Bryan by about 22,000. The detailed vote for the National and State tickets was as follows: Bryan, 136,928; Taft, 114,887; Debs, 345. Kitchin, 145,102; Cox, 107,760.

STATE OFFICERS. Governor, R. B. Glenn; Lieutenant-Governor, F. D. Winston; Secretary of State, J. B. Grimes; Treasurer, B. R. Lacey; Auditor, B. F. Dixon; Attorney-General, R. D. Gilmer; Superintendent of Education, J. Y. Joyner; Commissioner of Agriculture, S. L. Patterson; Commissioner of Insurance, J. R. Young; Adjutant-General, T. R. Robertson—all Democrats.

JUDICIARY: Supreme Court, Chief Justice, Walter Clark, Rep.; Justices, Geo. H. Brown, Dem., Wm. A. Hoke, Dem., Henry G. Connor, P. D., Walker, Clerk, Thomas S. Kenan, Dem.

The State legislature of 1909 is composed of 46 Democrats and 4 Republicans in the Senate, 99 Democrats and 21 Republicans in the House. The State representation in Congress will be

found in the article **UNITED STATES**, under the section *Congress*.

NORTH DAKOTA. One of the North Central Division of the United States. Its area is 70,837 square miles. The population in 1908, according to Federal estimate, was 511,966.

MINERAL RESOURCES. The mineral products of the State are relatively unimportant. They include clay products, coal, natural gas, and stone. The aggregate value in 1907 was \$875,180 as compared with a value of \$731,805 in 1906. Of this value the coal produced amounted to \$560,199, as compared with a value of the product in 1906 of \$269,873.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 3,856,000 bushels, valued at \$2,314,000 from 162,000 acres; spring wheat, 68,428,000 bushels, valued at \$62,954,000 from 5,899,000 acres; oats, 32,737,000 bushels, valued at \$13,757,000 from 1,399,000 acres; barley, 18,330,000 bushels, valued at \$8,432,000 from 940,000 acres; rye, 432,000 bushels, valued at \$281,000 from 24,000 acres; flaxseed, 13,770,000 bushels, valued at \$16,386,000 from 1,530,000 acres; potatoes, 2,550,000 bushels, valued at \$1,428,000 from 30,000 acres; hay, 243,000 tons, valued at \$1,166,000 from 187,000 acres. The State ranks first in the production of flax, third in wheat, and fifth in barley. The wheat crop of 1908 considerably exceeded that of 1907, which was 55,130,000 bushels. The largest wheat crops were those of 1905 and 1906, 75,623,000 and 77,896,000 respectively. The area devoted to flax has more than doubled in the last five years. The number of farm animals in the State on January 1, 1909, was estimated as follows: Horses, 678,000; dairy cows, 235,000; other cattle, 642,000; sheep, 621,000; swine, 226,000. The estimated value of the wool clip in 1908 was \$390,000.

MANUFACTURES. Manufacturing is of minor and only local importance. The total value of factory products in 1905 was only \$10,218,000, though this was a gain of 63.2 per cent. over 1900. Flour and grist mill products represented a value of \$6,463,228 in 1905, printing and publishing, \$1,110,400, and dairy products, \$562,480. These three values were respectively 68, 54, and 300 per cent. greater than corresponding values in 1900.

EDUCATION. The legislature of 1907 increased the annual appropriation for State aid of high schools from \$25,000 to \$45,000. The same year stimulus was given to the enforcement of the compulsory school law by requiring 50 per cent. attendance as a pre-requisite for the enumeration on the basis of which the State tuition fund is distributed. In 1907 there were 1660 school districts, with a total of 4054 schools. Of the schools, only 298 were graded. The school population (ages 6 to 20) was 143,089 in 1908. The total enrollment in 1907 was 118,205 and the average total attendance, 72,589. The length of the school term averaged 145 days, there being 2338 schools of at least seven months, 1035 of six months, 417 of five months, 374 of four months and 214 of three months or less. The high school enrollment was 5250. The teachers employed numbered 6364, of whom 5198 were women. The average monthly salary of men teachers was \$53.92, and of

women \$45.68. A law of 1905 made provision for the payment of a minimum salary of \$45.00 per month. The total expenditures for school purposes in 1905 were \$3,205,496. The total indebtedness of school districts was \$2,649,035.83. The permanent fund for common schools in 1907 was \$8,337,000, and for the University and other institutions, \$3,681,000. These funds were derived from the sale of school lands, of which the State still owned 2,006,930 acres in 1906.

CHARITIES AND CORRECTIONS. A law of 1907 provided for the parole of certain classes of prisoners under suspended sentence. The State institutions are as follows: Blind Asylum, Bathgate; Hospital for Insane, Jamestown; Industrial School, Ellendale; Institution for the Feeble-minded, Grafton; Penitentiary, Bismarck; Reform School, Mandan; School for Deaf and Dumb, Devil's Lake. The total expenditure for the maintenance of the institutions of the State from January 1, 1907, to August 30, 1908, was \$323,857.78, and the expenditure for building for the same period, \$252,224.

POLITICS AND GOVERNMENT. There was no meeting of the State legislature in 1906. At the Republican State Convention held on May 14 the delegates chosen were instructed to vote for W. H. Taft for president. The delegates chosen to the Democratic National Convention were instructed to vote for W. J. Bryan. C. A. Johnson was nominated for governor by the Republicans, and John Burke was nominated for re-election by the Democrats. In the election of November 3 the vote for National and State tickets was as follows: Taft, 57,771; Bryan, 32,900; Debs, 2,411; Chafin, 1,549; Burke, 49,346; Johnson, 47,093. In the Senatorial primaries M. N. Johnson defeated Senator Hansborough, who was a candidate for re-election.

STATE OFFICERS. Governor, John Burke; Lieutenant-Governor, R. S. Lewis; Secretary of State, Alfred Blaisdell; Treasurer, G. L. Bickford; Auditor, D. K. Brightbell; Attorney-General, Andrew Miller; Superintendent of Education, W. L. Stockwell; Adjutant-General, to be appointed; Commissioner of Agriculture, W. C. Gilbrath; Commissioner of Insurance, E. C. Cooper; Commissioner of Public Lands, O. I. Hegge—all Republicans, except Burke, Dem.

JUDICIARY. Supreme Court: Chief Justice David E. Morgan; Justices, Chas. J. Fisk, B. F. Spalding; Clerk, R. D. Hoskins—all Republicans.

The State legislature of 1909 is composed of 128 Republicans and 19 Democrats. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

NORTHERN NIGERIA. A British protectorate in West Africa. Area, 256,400 square miles; population (1906), estimated at 8,782,000. The Anglo-German boundary commission finished its labors in the latter part of 1907. The administration headquarters is at Zungeru, near the Kaduna river, a tributary of the Niger. The southern portion is covered with dense forests, especially along the river banks. The central portion is more open, and the extreme north is on the edge of the desert. The principal products are rubber, palm-kernels, palm-oil, gum, dye woods, mahogany, and ebony. Ivory, ostrich feathers, and tanned goatskins are also exported. Cotton is largely grown by the natives, especial-

ly in the Zaria and Kano provinces, but most of it is consumed locally. The export of cotton on Government steamers alone, exclusive of that carried by trading firms, amounted in 1907 to 282,240 pounds. Maize, millet, guinea corn, and tobacco of good quality are also cultivated by the natives. The protectorate is the hinterland of Southern Nigeria (q. v.), has no fiscal frontier, and there are no returns of imports and exports. The Niger, with its tributaries, is the main artery of traffic. A railway is in construction from Baro, the highest point to which the Niger is navigable during the whole year, to Bida. Its extension has been authorized to Zungeru, Zaria, and Kano, and it will connect with the Lagos (see SOUTHERN NIGERIA) line to Jebba, on the Niger. The first sleeper on the Baro-Kano railway was laid on Jan. 6, 1908. There are over 18 miles of telegraph line. The Imperial subvention in 1907-8 was £295,000; in 1908-9, £290,000. The Governor in 1908 was Sir E. P. C. Girouard.

NORTHWESTERN UNIVERSITY. An institution of higher learning at Evanston, Ill., founded in 1851. The College of Liberal Arts, the College of Engineering, the School of Music, the Evanston Academy, and the School of Oratory are situated at Evanston, twelve miles from Chicago. The Law School, the School of Pharmacy, the Dental School, and the School of Commerce are located in Chicago. In 1907-8 the attendance in all departments was 3,997, and the teaching staff numbered 358. The distribution of students is as follows: College of Liberal Arts, 1,037; Medical School, 684; Law School, 274; School of Pharmacy, 160; Dental School, 357; School of Music, 321; School of Commerce, 213. The College of Engineering was established by an act of the trustees in 1907 and the School of Commerce was inaugurated in the following year, 1908. The admission requirements have been advanced to one year of college work in the medical school and a high school graduation in the Dental School. A plan for the future developed of the campus has been proposed and a new building of engineering and a new gymnasium are in process of construction. The libraries of the University contain 126,051 volumes and 74,576 pamphlets. The expenditure for educational purposes in 1907-8 was \$60,188. The property and endowment aggregate \$9,038,604. The President is Abram Winegardner Harris.

NORTON, CHARLES ELIOT. A distinguished American scholar and educator, died at his home in Cambridge, Mass., on October 21, 1908. He was born in Cambridge, on November 16, 1827, a son of Andrews Norton (1786-1853), who graduated at Harvard in 1804 and became Dexter professor of sacred literature. Charles Eliot graduated at Harvard in 1846, entered a commercial house in Boston the same year, and three years later voyaged to the East Indies as a supercargo. His natural preference for literature, however, soon caused him to abandon the career of a merchant for that of the scholar, and he traveled in India and Europe in 1850-51, and lived in Europe from 1855 to 1857 and again from 1865 to 1873. In 1862-68 he was co-editor, with James Russell Lowell, of the *North American Review*, and in 1875 he was appointed professor of the history of art at Harvard, a chair which he held until 1898, when he became professor emeritus. His principal courses of lectures at Harvard were on

"The History of Fine Arts and their Relation to Literature," "The Rise and Fall of the Arts in Athens and in Venice," "The Arts of the Age of Pericles," and discussions of the art of the Renaissance, of Gothic and Romanesque art, and of Florentine and Venetian art. Professor Norton was a profound student of Dante, and in 1882 introduced at Harvard a course on "The Interpretation of the *Divina Commedia*," which he supplemented, in 1886, by a course on "The *Vita Nuova*, and the *Divina Commedia*." His fine appreciation and thorough knowledge of Dante are revealed in his translations of the *Vita Nuova* (1867), and of the *Divina Commedia* (1891), admirable interpretations of those masterpieces. His other publications include *Considerations on Some Recent Social Theories* (1853), *The New Life of Dante* (1859), *Notes of Travel and Study in Italy* (1860), and *Historical Studies of Church-building in the Middle Ages* (1860).

Professor Norton was on terms of warm personal friendship with John Ruskin, Thomas Carlyle, James Russell Lowell, and George William Curtis. Especially intimate and sympathetic were his relations with Ruskin, whom he met by chance on Lake Geneva in 1855—a meeting of which Ruskin wrote in his *Praeterita*: "And thus I became possessed of my second friend after Dr. John Brown, and of my real tutor, Charles Eliot Norton." The lives and minds of both men were profoundly influenced by this friendship, and when Ruskin died it was natural that Professor Norton should become his literary executor and should edit his works and letters (1904). Similarly when differences appeared between the family of Carlyle and James Anthony Froude, Professor Norton was selected to edit *The Correspondence of Carlyle and Goethe* (1887), *The Correspondence of Carlyle and Emerson* (1888), and *Carlyle's Letters and Reminiscences* (1887). He was also the literary executor of Lowell, and edited his *Letters* (1893), and he prepared for the press George William Curtis's *Orations and Addresses* (3 vols., 1893-94). With Longfellow, as well, he had come in close personal touch, and especially just after his return from Europe in 1857, when the poet was making his translation of the *Divina Commedia*, a rendition which owes much to the critical acumen and scholarship of Professor Norton. And it is of more than passing significance that Professor Norton was the first American critic to see the matchless beauty of Fitzgerald's *Omar Khayyám*, an appreciation which established another enduring friendship. He had an active part in the founding of the Archaeological Institute of America in 1879, and was its president until 1890; he succeeded Lowell as president of the Dante Society; and for many years was an overseer of Harvard. His activities outside his own special field of letters included his secretaryship of the Loyal Publication Society which, during the Civil War, distributed great quantities of literature supporting the Union cause, while his editorship of the *North American Review* during the same period was very influential in the same direction. In more recent years he had repeatedly spoken in no uncertain words on public questions of moment, the Spanish war policy and the issue of imperialism, for instance, both of which he strongly opposed.

From Harvard (in 1887) and from Yale (in 1901), Professor Norton had received the degree of LL.D., from Cambridge, that of the L.H.D. in 1884, from Oxford that of D.C.L. in 1900.

NORWAY. A kingdom of the Scandinavian peninsula, covering an area of 124,122 square miles. Its population numbered 2,240,032 in 1900, and was estimated at 2,330,364 on December 31, 1907. The movement of population in 1906 was as follows: Marriages, 13,590; births, 61,316; deaths, 31,214; emigrants, 21,967. Christiania, the capital, had 227,628 inhabitants in 1900; Bergen, 72,251 (80,000 in 1905); Trondhjem, 38,180; Stavanger, 30,613.

PRODUCTION. The number of codfish caught off the coasts of Norway during the 1908 season was 48,217,000, against 47,625,000 in 1907. The fisheries off the Lofoten Islands yielded 13,300,000 cod in 1908, against 18,700,000 in 1907; the Finmarken coast, 2,100,000 in 1908, against 3,200,000 in 1907. The herring fisheries yielded 348,000 barrels in 1908, against 213,100 barrels in 1907. The catch of mackerel in 1908 was 42,000 barrels, nearly all of it shipped to the United States. The yield of refined cod-liver oil in 1908, 13,727 hectolitres, against 12,720 in 1907. The Norwegian fishing fleet consisted in 1906 of 2,355 small sail-boats, 1,398 large sail-boats, 647 motor boats, and 176 steamboats, of an aggregate value of \$6,697,400. The number of persons employed in the sea-fisheries in 1906 was 108,000. The fishing industry has grown in importance since the introduction of motor engines and motor boats, the demand for which is steadily increasing. The catch is now larger than formerly, but the profits are not always so satisfactory, as the expenses for a motor boat are much larger than for an ordinary fishing boat. The decked motor boat affords the fishermen better protection in bad weather, besides greater safety. There are three funds from which Norwegian fishermen can secure loans for the purchase of fishing boats: The old sea-fish fund, which advances three-fourths to two-thirds the value of the boats, to be paid back in ten or fifteen years, in yearly payments, with interest at the rate of 2½ per cent. per annum; the new fish fund, which advances loans to the extent of one-half the value of the boat, payable in ten yearly payments; the Finmarken fund, which loans to the extent of four-fifths the value of the boats, to be paid back in ten yearly payments at 2½ per cent. interest. None of these funds requires payments for the first year of the loans.

About four years ago a law was passed prohibiting the catching of whales within three miles of the Norwegian coasts. This was due to the belief that the whales, in pursuit of shoals of herring and other fish, drive them under the shores. The whaling companies were to some extent remunerated for their losses by the government. Since that time Norwegian whaling companies have extended their operations to Spitzbergen and to the Antarctic, around the Falkland and South Shetland islands, and to Kerguelen Island, as well as to the South African coast (see NATAL).

The wheat production in 1907 was 200,000 bushels, against 303,000 in 1906; oats in 1907, 6,000,000 bushels, against 9,297,000 in 1906. The

country depends upon foreign imports for its cereals. In 1907 there were imported 351,414 tons of ground and 86,237 tons of unground cereals, mostly rye and barley, of which Russia furnishes over one-half. The imports of 1908 were larger, owing to the failure of the 1907 crops. The use of wheat flour is extending, the imports having increased from 4,150,000 kilos in 1871 to 50,200,000 kilos in 1907.

Mining shows considerable progress, especially in the northern counties. These mines are operated largely by foreign capital. The number of persons employed in the mines was 4,500 in 1905, of which 3,400 were employed in the copper mines. The total exports of minerals in 1907 were as follows: 187,983 tons of pyrites, valued at \$11,085,820; 1,581 tons of copper ore; 98,143 tons of iron ore; 34,450 tons of iron briquettes; 1,033 tons of refined copper, worth \$456,832; and 2,237 tons of raw zinc, worth \$360,000. Granite blocks and dressed stone to the amount of 145,791 tons, valued at \$532,000, were exported, chiefly to England. The output of cement in 1907 was 204,000 fads (375 lbs. net each), and the consumption, 294,000 fads.

The lumber industry and pulp and paper manufacture have undergone swift development. In 1907, 556,605 tons of mechanical pulp and cellulose, valued at \$9,304,665, and 98,698 tons of printing and packing paper and cardboard, valued at \$4,369,150, were exported.

The electric industry, catering to foreign demands especially, is beginning to make great strides. The exports of calcium carbide in 1907 amounted to 22,591 tons, valued at \$1,089,800. The cotton industry employed in the year ending August 31, 1908, 74,936 spinning spindles, and consumed 20,794 bales of cotton, of which 17,081 bales were American and 3466 East Indian. For the preceding year the cotton consumption was reported at 10,647 bales.

FOREIGN COMMERCE. The imports and exports in 1907 amounted to 385,708,000 and 253,101,000 crowns respectively, against 343,524,000 and 245,923,000 (31,086,300 crowns' worth of foreign produce) in 1906. The imports and exports of 1907 were classed as follows, in crowns (1 crown = 26.8 cents):—

	Imports	Exports
Foods	118,500,000	80,000,000
Raw materials.....	107,100,000	85,400,000
Manufactures	74,400,000	64,500,000
Miscellaneous	85,700,000	23,200,000

The principal imports in 1907 were: Cereals, 64,300,000 crowns; colonial goods, 26,000,000; animals, 17,000,000; coal, 30,000,000; metals, 18,900,000; tissues, 40,900,000; oils, 25,100,000. The principal exports in 1907 were: Animals, 75,000,000; timber, 44,000,000; minerals, 26,300,000; paper and paper products, 17,700,000; wood-work, 43,100,000. The trade in 1907 with the principal countries of origin and destination was as follows, in crowns:—

	Imports	Exports
Great Britain.....	104,779,000	95,062,000
Germany	101,387,000	39,852,000
Sweden	34,060,000	6,821,000
Denmark	25,181,000	12,401,000
France	6,642,000	10,256,000
Netherlands	17,853,000	23,602,000
Belgium	15,017,000	10,726,000
Spain	2,746,000	11,879,000
United States.....	14,545,000	10,331,000

COMMUNICATIONS. The total shipping entered in 1907 was 11,796 ships of 4,402,709 tons (2,023,026 Norwegian), and cleared, 12,864 ships of 4,416,458 tons (2,017,240 Norwegian). On January 1, 1908, the merchant marine consisted of 7,596 ships of 1,573,127 registered tons, including 5,718 sailing boats of 758,109 tons, and 1,878 steamers of 815,018 tons. A Norway-Mexican Gulf line of steamers was started in 1907. The company is to receive a subsidy of 100,000 crowns a year for three years, and will maintain regular communication between Norway and certain Gulf ports every six weeks. The first run was made in September, 1907. Two ships, to be launched in the latter part of 1908, were also under construction, and these were intended also to call at Norfolk, Va. In 1908 was organized the Scandinavia-United States direct line. For the present six steamers will be engaged in the service between Norway, Sweden and Denmark, and the United States. The capital for the consolidated line is furnished equally by each of the three countries. They will sail under the Norwegian flag, and Bergen will be the headquarters of the company. The length of railways in 1908 was 1,604 miles, of which about 1,360 belonged to the State; of State telegraph lines in 1907, 6,492 miles. On June 10, 1908, the first passenger trains were despatched on the railway that traverses the great mountain barrier between Bergen, the chief city of western Norway, and Christiania. A part of the eastern link was still unfinished. By 1910 the line is expected to be completed, and will then join the Northern Railway leading into Christiania. The steamer journey between Bergen and Christiania takes at least two days and a half; the railway journey will take twelve hours. The railway passes for 35 miles through regions of almost permanent snow and ice, reaching an altitude of 4,265 feet above sea level. The first exploration work was done in the early seventies, and the decision to build the line was reached by the Government in 1894. In the latter part of 1908 the Storting passed a bill authorizing a number of important lines, the building of which is to extend over a period of twelve years. The plan contemplates the establishment of railway connection between the south and north, between the southeast and northwest, between Christiania and Stavanger, and between Trondhjem and Nordland, the final terminus of the last-mentioned line being a little above the Arctic Circle.

FINANCE. The revenue and expenditure for the year ending March 31, 1906, were 100,081,000 (including 7,417,000 crowns raised by loans) and 98,715,000 crowns respectively. The budget for 1906-7 balanced at 114,209,200 crowns, and for 1907-8 at 105,551,000. For the last-mentioned year the principal sources of revenue were estimated as follows: Income tax, 5,800,000 crowns; customs, 40,000,000; excise on spirits and malt, 7,800,000; railways, 15,598,000; post office and telegraphs, 9,437,000; railway loan, 6,528,000. The principal estimates of expenditure for 1907-8 were: Civil list, 751,000 crowns; worship and education, 11,359,000; justice, 7,744,000; post, telegraphs, etc., 11,284,000; railways, 20,838,000; public works, 4,977,000; public debt, 15,257,000; army, 13,408,000; navy, 4,839,000. The national debt stood on March 31, 1907, at 333,799,000 crowns. The

State assets were 363,600,900 crowns, the railways alone being worth 224,219,000 crowns.

ARMY AND NAVY. The army is a national militia. The line and landvärn aggregate about 75,000 men, but not more than 18,000 can be under arms without the consent of the Storting. The nominal strength of the landstorm and its reserve is 95,000. At the beginning of 1908 the effective strength of the navy was as follows: Four armored coast defense vessels, aggregating 14,720 tons; 2 protected small cruisers, 2,500 tons; 4 gunboats, 1,600 tons; 1 destroyer, 390 tons, and 34 torpedo boats, 2,360 tons, giving a total of 45 ships, of 21,570 tons. The crews numbered 2,506.

GOVERNMENT. King Haakon VII., born August 3, 1872, the second son of King Frederick VIII., of Denmark, was elected king by the Storting on November 18, 1905, accepted the crown on November 20, and landed in Norway on November 25, 1905. The cabinet consisted in 1908 as follows: Premier and Minister of Finance, Gunnar Knudsen; Foreign Affairs, W. Christophersen; Commerce, Navigation, and Industry, Lars Abrahamsen; Defense, naval, Capt. K. F. G. Dawes; Customs, Lt.-Col. H. D. Lowzow; Justice and Police, J. Catsberg; Agriculture, L. K. Fossnaes; Public Works, U. C. Ihlen; Worship and Instruction, K. Seip. In 1907 women were granted the franchise to the Storting on the same conditions as at municipal elections, namely, that they or their husbands have paid an income tax on an annual income of 400 crowns in the towns or 300 crowns in the rural districts.

HISTORY.

PARLIAMENT. M. Michelsen, the Premier, retired on October 28, 1907, and was succeeded by M. Lövland, his Minister of Foreign Affairs, who recruited his cabinet from the moderate Left. M. Michelsen had been a leader of the dissolution movement which culminated in 1905 in the separation of Norway and Sweden. Under him also occurred the adoption of a limited woman's suffrage (June 14, 1907), whereby the same rule was applied to national as had been applied since 1901 to municipal elections. It bestowed the right to vote on women not less than thirty years of age who paid taxes on an annual income of not less than 300 kr. in the country or 400 kr. in cities or whose husbands paid taxes on that amount. The Socialists and the Right were expected to profit from its operation, rather than the Left which was largely a peasant or country party, and whose women voters had more difficulty in gathering at the polls on account of the distances. Important questions before the country and Parliament in 1908 as in previous years were the language question, pertaining to the recognition and cultivation of the *landsmaal* or native speech, the question of national insurance, and the question of the rights of foreign capitalists in waterfalls, mills, and forests. Another important issue was the national organization of the church, the church party claiming its independence of the state authorities. The Storting voted to create a commission, half of its members appointed by the Storting and half by the King, to study this question. The main interest of the session of the Storting which began on January 11, 1908, was the radical change in the status of political parties. There was a division in the Left, which had for many years presented a solid

front as the party of progress and reform and the party that had carried through the dissolution. It was reconstituted under M. Knudsen, former Minister of Finance, the majority of fifty driving out the discordant element and consolidating itself again as the party of progress and reform. M. Knudsen presented a vote of censure declaring that a government which did not derive its support from the Left, or follow the Left's policy, was not entitled to their confidence. The Socialists also brought in a vote of censure. The government having only 60 votes against 53 for Knudsen and 10 Socialists, M. Lövland resigned and was succeeded by M. Knudsen, who gave the radical wing of the Left a fair representation in his cabinet.

FOREIGN AFFAIRS. The text of the treaty of November 2, 1907, was for the first time made public in February, 1908, after receiving the unanimous consent of the Storting. It followed a diplomatic convention with Norway on the part of Great Britain and France abrogating the treaty of November, 1855, by which the two latter Powers had guaranteed the united kingdom of Sweden and Norway against Russian aggression. The new treaty signed with Norway by the four great Powers of the North Sea, Germany, France, Great Britain, and Russia recited that the contracting Powers were "animated by a desire to assure to Norway, in her actual limits and with her neutral zone, her independence and her territorial integrity, as well as the benefits of peace." By Article I. the Norwegian government agreed "not to cede to any Power either by title of occupation or by any other title any part of her territory." By Article II. the German, French, British, and Russian governments "recognize and bind themselves to respect the integrity of Norway. If the integrity of Norway is menaced or impaired by any Power, the aforesaid governments bind themselves, after a preliminary communication to that effect from the Norwegian government, to lend their support by such means as are judged the most appropriate in order to safeguard the integrity of Norway." The term of the treaty was ten years.

NOVA SCOTIA. A maritime province of Canada. Area, 21,248 square miles. Population in 1901, 459,574. Halifax, the capital, had 40,832 inhabitants in 1901. For details respecting population, education, production, commerce, etc., see CANADA. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada, and acting through an executive council, or responsible ministry, and a legislature consisting of a legislative council of 21 appointed members and a house of assembly of 38 elective members. The present Lieutenant-Governor is Duncan Cameron Fraser, appointed March 27, 1906. The present Premier is George H. Murray.

HISTORY. By far the most noteworthy event in 1908 was the celebration at Halifax, on August 19, of the opening of the first Parliament of Nova Scotia one hundred and fifty years ago, on October 2, 1758. The Lieutenant-Governor, Hon. Mr. Fraser, Chief Justice Townshend, Hon. W. A. Weir, Mr. Justice Drysdale, and other prominent persons delivered addresses. A tablet was unveiled in the historic Province Building. In addition to the local regiment, a guard of honor from the German cruiser *Fregat* took part in the proceedings. The inscription

on the tablet was in part: "1759-1908. This tablet is to commemorate the convening of the first General Assembly of Nova Scotia, which met for the despatch of business at the Court House, Halifax, on October 2, 1758, in the time of his Excellency, Charles Lawrence Esq., Captain-General and Governor-in-Chief in and over the Province of Nova Scotia." It was recalled that when this parliament met the old Province of Canada, which included what is now Ontario and Quebec, was under French rule. The Liberal government of Premier Murray retains the confidence of the people.

NOVI BAZAR. See BALKAN QUESTION.

NOYES, CROSBY STUART. An American journalist, editor-in-chief of the *Washington Evening Star*, died on February 21, 1908. He was born at Minot, Me., on February 16, 1825, and was a graduate of Bowdoin College. His first newspaper work was in Maine, where from time to time he contributed short articles to the newspapers. In 1847 he went to Washington, and the year following became connected with the *Washington News* and also acted as correspondent for Philadelphia and Boston papers. With the exception of the year 1855, when he crossed the continent on foot, contributing special articles to the *Portland Transcript*, the remainder of his newspaper career was passed in Washington. He was especially known for the work he did for the *Washington Star* during the Civil War, the close relations he had established with many of the men then in public life, and with some of the department heads, aiding him greatly in obtaining authentic information. Two years after the war he and other Washington correspondents bought the *Star*, and he was made editor-in-chief of the reorganized paper, which was named the *Evening Star*.

NUTRITION STUDIES. See FOOD AND NUTRITION.

NYASSALAND PROTECTORATE.

A British possession in the eastern part of Central Africa, known until July 6, 1907, as the British Central Africa Protectorate. Area, 40,980 square miles; population (1907), estimated at 948,270 (587 Europeans and 515 Asiatics). Zomba, on Lake Nyassa, is the seat of administration. Blantyre has over 6,000 inhabitants (200 Europeans). The agricultural products include rice, cotton, tobacco, coffee, and tea. Wheat has been recently introduced. Oats and barley grow well on the highlands. The acreage of cotton under European cultivation in 1907-8 was 8,659, and the exports of cotton was 403,486 pounds, valued at £13,999; against 7,017 acres, and an export of 526,119 pounds, valued at £15,345, in 1906-7. The crop of 1907-8 was poor, owing to drought in the uplands and excessive rain in the lowlands. The native crop of cotton in 1907-8 was 24½ tons, approximately one-third of that produced in the two preceding years. The cultivation of tea is confined to the Mlanje district, where the soil and climate are especially favorable. In 1907-8 tea covered 516 acres, yielding 2½ tons. For 1908-9 the tea crop was estimated at 9½ tons. The quality has improved in the last three years, owing to the greater maturity of the bushes. Planters do not eagerly take up tea cultivation, as it requires a large capital and five or six years have to elapse before there are any returns on the investment. But it is stated that

in Nyassaland tea can be produced at less cost than in India or Ceylon. The imports for consumption and exports of colonial produce in 1907-8 amounted to £169,541 and £68,604 respectively. The imports are mainly cotton goods, hardware, and provisions; the exports, coffee, tea, cotton, tobacco, ground nuts, rubber, and chillies. A railway from Port Herald to Blantyre, 113 miles long, was opened on March 31, 1906. It will probably be extended to Lake Nyassa by way of Zomba. On Lake Nyassa there are eight steamers. The length of telegraph line is over 780 miles. The Governor in 1908 was Sir Alfred Sharpe.

OATS. The annual crop statistics published by the Department of Agriculture showed that in 1908 32,344,000 acres of oats were grown which produced a total yield of 807,156,000 bushels, the average yield per acre being 25 bushels. As compared with 1907 this shows an increase of 1,507,000 acres in area and of 52,713,000 bushels in total production. The average yield for 1908 was also better by 1.3 bushels per acre. In total value of crop oats ranked fifth and as usual next to wheat, the amount being \$381,171,000, which had never been exceeded. The year's yield was surpassed in 6 different seasons since 1895, when the yield was 824,443,000 bushels. Iowa, the leading State in oat production in 1908, produced 110,444,000 bushels on 4,545,000 acres, the average acre yield being 24.3 bushels. The total crop of the State on December 1 was worth on the farm \$46,386,000. The States ranking next were Illinois with 4,100,000 acres and 94,300,000 bushels, Wisconsin with 2,350,000 acres and 73,085,000 bushels, Minnesota with 2,682,000 acres and 59,004,000 bushels, and Nebraska with 2,549,000 acres and 56,078,000 bushels. All other States produced less than 50 million bushels. These 5 States produced about 36 per cent. of the total crop for the year.

The world's oats production in 1907 amounted to 3,582,041,000 bushels. Of this quantity European Russia furnished 820,621,000 bushels, Germany 630,324,000 bushels, France 314,132,000 bushels, Austria-Hungary 257,172,000 bushels, Canada 210,869,000 bushels and the United Kingdom 198,718,000 bushels. All other countries produced less than 100,000,000 bushels.

While it is possible to raise as high as 90 to 100 bushels of oats per acre the average yield for the entire country in 1908 was only 25 bushels and for the leading States it ranged from 22 bushels in Minnesota and Nebraska to 31.1 bushels in Wisconsin. It would seem then that there was room for improvement and ways and means for bringing this about were outlined by Prof. M. L. Bowman of the Iowa Agricultural College in a paper presented at the National Corn Exposition at Omaha. It was pointed out in this paper that no No. 1 oats are received at our leading markets, only 0.2 per cent. of No. 2 oats, 2 per cent. of standard, 54 per cent. of No. 3, and 40 per cent. of No. 4; or that 94 per cent. of the oats marketed belong to the low grades. Basing the discussion largely on results secured at the Iowa experiment station, Prof. Bowman showed how different factors may influence quality and yield. The variety grown must be adapted to the locality. At the Iowa station the average yields of 20 varieties grown for 3 years varied from 26.2 to 62.5 bushels and the tests on the whole showed that

Silvermine, Kherson, and Swedish Select were best adapted to the locality. Attention was called to the fact that Prof. Zavitz's work in Canada resulted in a yield of 65.5 bushels per acre from large plump seed and only 44.7 bushels from light seed and that the weight per bushel was 35.5 and 24.3 lbs. respectively. This is mentioned as an argument for cleaning and screening the oats before seeding. Formalin treatment reduced smut to 0.6 per cent., as compared with 7.9 per cent. of smut in the untreated crop. The rate of seeding should be heavier for large than for small seed as the number of seeds per bushel varies greatly. Kherson oats before fanning contained 1,054,600 grains per bushel and after fanning three times only 830,600 grains, while for Silvermine the corresponding figures were 1,038,200 and 806,300. Drilling is recommended as much more profitable than sowing broadcast. A closer grading of oats on the primary market would tend toward the production of a staple higher in quality. It was observed that Red Texas oats when grown in Kansas for several years becomes badly mixed with grains having black chaff. Investigation by the Kansas experiment station indicated that the black oats was an admixture to the seed of the Red Texas, and that it is inferior to it in quality.

OBERLIN COLLEGE. An institution of higher learning at Oberlin, Ohio, founded in 1833. The attendance during the year 1908-9 is 1940; of this number 874 are in the College of Arts and Sciences, 560 in the Conservatory, and 47 in the Theological Seminary. During the past year two important new buildings have been completed, the Finney Memorial Chapel, seating 1,980, and the Carnegie Library. The Chapel was erected at a cost of \$135,000, and the Library, at a cost of \$155,000. Temporarily the Olney Art Collection occupies quarters in the Library. Funds are being raised for the erection of a new Art Building and of a Men's Building. A Chapter of Phi Beta Kappa was established last year. The endowment is \$1,700,000. The total assets including endowments, buildings, and grounds are \$3,540,000. Henry Churchill King is President.

O'CONOR, Sir NICHOLAS RODERICK. An English diplomat, died on March 19, 1908. He was born in Dundermott, County Roscommon, Ireland, on July 3, 1843, was educated at Stonyhurst and at Munich, and entered the diplomatic service in 1866. From 1870 to 1886 he served at Washington, Madrid, Rio de Janeiro, Paris, and Peking; he was political agent and consul-general at Bulgaria in 1886-92; minister at Peking in 1892-96; ambassador at St. Petersburg in 1895-98; and, after 1898, ambassador at Constantinople, where he died. During his consul-generalship at Sofia, he negotiated the important Anglo-Bulgarian commercial agreement, despite the greatly disturbed condition of the country following the abdication of Prince Alexander (1886), while as minister to China his firmness and fearlessness greatly improved conditions there so far as they affected Englishmen in particular, and foreigners in general. At St. Petersburg his relations with Count Muravieff became so strained in consequence of what O'Connor considered acts of bad faith on the part of the Russian government that, though his own government approved of his stand, he was transferred to Constantinople,

where his service was in the main successful, despite the profound distrust of Great Britain felt by the Ottoman government.

OHIO. One of the North Central States of the United States. Its area is 41,040 square miles. The population according to a Federal estimate made in 1908 was 4,545,719.

MINERAL RESOURCES. The mineral production of Ohio is surpassed only by that of Pennsylvania among the States. In 1907 the aggregate value of mineral products amounted to \$207,657,339, a decrease of \$2,319,591 over the preceding year. Of this production, pig iron amounted to 5,250,687 long tons, as compared with 5,327,133 long tons in 1906, and 4,586,110 long tons in 1905. There were on January 1, 1908, 68 blast furnaces for the production of pig iron in the State. There was a considerable increase in the production of coal in 1907 over the production of 1906. In the former year 32,142,416 short tons were produced, valued at \$35,324,746. This was an increase of 4,410,779 short tons, or 15.91 per cent. in quantity and of \$4,978,166 or 16.4 per cent. in value over the production of 1906. The industry in Ohio was not affected by labor troubles or strikes of any consequence during 1907. Mining was interrupted for a short time in the Hocking Valley district by disastrous floods, but this interruption did not result in serious loss to the mines. There were employed in the mines of the State in 1907 46,833 men, as compared with 45,438 in 1906. Ohio leads all the other coal producing States in the percentage of the total product mined by the use of machines. In 1907 there were 1,328 coal mining machines in use, as compared with 1,255 machines in 1906. There were 153 men killed in the mines of Ohio during 1907. There has been an increase in the value of coke produced in the State in the past five years, although the production fell from 293,994 short tons in 1906 to 270,634 short tons in 1907, while the value of the production fell from \$1,013,248 to \$819,262 in 1907. Ohio ranks first among the State in the value of clay products. In 1907 these products were valued at \$30,340,830, which was a decrease from the figures of 1906, which were \$31,014,165. Ohio ranks fifth among the States in the production of petroleum. There were produced in 1907, 12,207,448 barrels, a considerable decrease from the production of 1906, which was 14,787,763 barrels. Ohio ranked first in the value of its petroleum production in 1906, but in 1907 had fallen to fifth place, being surpassed by the Oklahoma-Kansas field, Pennsylvania, Illinois, and West Virginia. The value of the product of 1907 was \$14,769,858, as compared with a value of the product for 1906 of \$16,997,000. In the production of salt Ohio ranks third, being surpassed only by New York and Michigan. In 1907 there were produced 3,851,243 barrels, valued at \$979,078, as compared with a production of 3,236,875 barrels in 1906, valued at \$789,237. There were produced in 1907 1,151,176 barrels of Portland cement, valued at \$1,377,155, as compared with 1,422,901 barrels in 1906 with a value of \$1,709,918. Ohio produces over six-sevenths of the grindstones and pulp stones of the country. Other important mineral products are coal products, building stone, sand and gravel, oilstones and whetstones, iron ores, pyrite, bromide, gypsum, natural cement, and metallic paint. It is estimated that the coal ton-

nage of the State in 1908 was about 15 per cent. less than that for 1907. The coal market of 1908 was affected during the earlier part of the year by the uncertainty of manufacturers as to conditions following the panic. The State had less mining trouble in 1908 than for several years past. The remarkably dry season had no appreciable effect on the industry, other than that seen in the additional cost due to the necessity of hauling water, and the temporary closing of a few mines.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 136,675,000 bushels, valued at \$86,105,000 from 3,550,000 acres; winter wheat, 33,328,000 bushels, valued at \$32,995,000 from 2,083,000 acres; oats, 38,554,000 bushels, valued at \$18,887,000 from 1,460,000 acres; barley, 825,000 bushels, valued at \$528,000 from 30,000 acres; rye, 808,000 bushels, valued at \$614,000, from 49,000 acres; buckwheat, 24,000 bushels, valued at \$197,000 from 13,000 acres; potatoes, 13,090,000 bushels, valued at \$10,079,000 from 170,000 acres; hay, 4,590,000 tons, valued at \$39,933,000 from 3,000,000 acres; tobacco, 33,768,000 pounds, valued at \$3,545,640 from 50,400 acres. The State ranks seventh in the production of corn. The corn crop of 1908 showed a considerable increase over that of 1907, which was 117,640,000 bushels. The production of wheat also showed an increase over the crop of 1907, which was 30,677,000 bushels. The oat production showed a considerable decrease from that of 1907, figures for the latter year being 36,480,000 bushels. The tobacco production showed a decrease in 1908 of nearly 50 per cent. from that of 1907, the figures for the former year being 60,480,000 pounds. The farm animals on Jan. 1, 1909 were estimated to number as follows: Horses, 958,000; mules, 21,000; dairy cows, 947,000; other cattle, 998,000; sheep, 3,110,000; swine, 2,380,000. The wool clipped in 1908 was estimated at 2,000,000 pounds valued at \$3,182,400.

MANUFACTURES. Very substantial progress was made in manufacturing from 1900 to 1905. Limiting the comparison to industries carried on in factories, there was an increase of 50 per cent. in capital, of 18.2 per cent. in the number of wage-earners, and of 28.3 per cent. in the value of products. The figures in 1905 were: Capital, \$570,908,900; wage-earners, 364,298; and value of products, \$960,811,800. This latter sum was exceeded by only four States. Of the wage-earners, 55,375 were women, and 5095 were children under 16. The values due to leading industries, and the percentage increase in value over 1900 (in parentheses), were: Iron and steel, \$152,859,100 (10); foundry and machine shop products, \$94,507,600 (30.5); flour and grist mill products, \$40,855,600 (16.5); slaughtering and meat packing, \$28,729,000 (34.5); boots and shoes, \$25,140,000 (40.3); liquors, malt, \$21,620,800 (19); and distilled, \$15,976,500 (28.4); railway repair shops, \$21,428,000 (65.1); clothing, men's, \$18,496,000 (11.5), and women's, \$12,803,500 (64.7); printing and publishing, newspapers and periodicals, \$15,963,600 (34.6), and book and job, \$11,530,900 (45.2); planing mills, \$17,725,700 (60.2); carriages and wagons, \$16,096,000 (3); rubber and elastic goods, \$15,963,000 (117.8); furniture, \$13,322,-

600 (40); cigars and cigarettes, \$13,241,000 (17.8); agricultural implements, \$12,891,000 (7.8); lumber and timber products, \$12,568,000 (36 per cent. decrease). Slightly less values were represented by electrical apparatus and supplies, soap and candles, paper and wood pulp, refining petroleum, roasting and grinding coffee and spices, glass, and structural ironwork. (For pig iron and clay products, see paragraph *Mineral Resources*.) Ohio easily ranks next to Pennsylvania in the iron and steel industry. The production of all kinds of rolled iron and steel amounted to 2,737,497 tons in 1900, 3,481,178 tons in 1904, 2,302,142 tons in 1905, and 2,979,367 tons in 1906.

EDUCATION. The report of the State Commissioner of Common Schools for 1908 shows that there were in the fiscal year ending June 30, 1908, 69 city districts, 1,207 village and special districts, and 1327 township districts. There were in the State 1,253,805 persons of school age (6 to 21). The total number enrolled in the public schools was 859,774, of whom 791,343 were in elementary schools and 68,341 in high schools. The average daily attendance was 604,092. There were 960 high schools in the State, of which 324 were first grade, 278 second grade, and 358 third grade. In the first grade schools courses of four years of 32 weeks each are offered; in the second grade, 3 years of 32 weeks each; and in the third grade, 2 years of not less than 28 weeks each. The total receipts for school purposes were \$25,987,020. Of this sum, \$19,327,580 was derived from local taxes, \$2,150,048 from the State taxes, and \$2,363,333 from the sale of bonds. The total expenditures for the year were \$24,695,157. There were employed 26,999 teachers, of whom 2,690 were in high schools. The average monthly salary of men teachers in elementary schools in township districts was \$44, and of women \$43; of men in elementary schools in other districts, \$55, and of women, \$45. There were in the State 31 colleges and universities, and 23 academies and preparatory schools, 8 normal schools, 4 theological seminaries, and 20 professional schools.

FINANCE. The report of the State Treasurer for the fiscal year ending Nov. 15, 1907, showed a balance on Nov. 16, 1906, of \$3,746,033. The receipts for the fiscal year ending Nov. 15, 1907, were \$10,891,439 and the disbursements, \$9,555,621, leaving a balance on Nov. 15, 1907, of \$5,081,850. The receipts were: From the general revenue fund, \$7,767,027; from the sinking fund, \$341,675; from the school fund, \$2,236,649; and from the university fund, \$546,086. The taxes received from the counties of the State amounted to \$2,441,369; the receipts from liquor traffic taxes amounted to \$2,751,023. The State tax levy of 1907 was 1.345 mills.

POLITICS AND GOVERNMENT. The year 1908 was one of the most stirring, politically, in the history of the State. The fact that the Republican nominee for the presidency was one of her sons would, under normal conditions, presuppose an almost unanimous support for his election in that party in the State. In Ohio, however, the situation was complicated by the strong and bitter opposition to Judge Taft as a candidate by both the United States Senators, J. B. Foraker and Charles P. Dick, but especially by the former, who had a powerful influence in the Republican "machine" of the

State. The opposition to Judge Taft on the part of Senator Foraker became active as early as Mar., 1907, when the former formally announced his candidacy. Senator Foraker at once began a fight to secure delegates to the State and National Conventions who should be opposed to Judge Taft, and on Mar. 26, 1907, he announced that he would call a primary election early in 1908. On Dec. 9, 1907, he sent a request to the Chairman of the Republican State Convention to that effect. Between those two dates he was industrious in stirring up opposition throughout the State. He received and accepted the indorsement of the State League of Republican Clubs for the presidency, and thus became himself an active candidate.

Senator Foraker had been perhaps the most active opponent in the Senate to the policies of President Roosevelt, and it was no secret that the President had no sympathy with his attempts to stir up strife in Ohio. Senator Foraker, on his side, carried on his campaign with the avowed purpose of discrediting certain policies of the President. These policies had the hearty support of Judge Taft, and on this was based, to a large degree, the burden of Senator Foraker's opposition, though there was also at issue his continued control of the State machine. On Jan. 2, the Republican State Central Committee issued a call for State Convention primaries on Feb. 11. Senator Foraker objected to certain conditions to be observed in these primaries, and declared that he would not be bound by the results. He continued his fight against President Roosevelt and Judge Taft by securing the rejection on Jan. 14, by the Senate, of the nominations of four postmasters, whose appointment, he alleged, was due to promises to support Judge Taft's candidacy. An attempt was made to have the Bronson primary election law, under which the call for elections had been issued, declared unconstitutional, but the Supreme Court on Jan. 28 denied the petition for an injunction restraining the State Committee from issuing the call. Senator Foraker instructed his supporters to ignore the primaries.

The result of the elections was a complete and decisive victory for the Taft forces. Delegates pledged to Judge Taft were elected from nearly every county in the State where primaries were held; in the other counties election boards certified to the State Convention lists of delegates of the Taft managers as elected without opposition. The result made the action of the State Convention little more than a formality, and when that body assembled on Mar. 3 the Taft-Roosevelt forces were in complete control. Delegates at large were instructed to vote for Judge Taft for President without a dissenting vote. The platform adopted contained planks calling for government regulation of railways as against government ownership, the re-enactment of the Employers' Liability Law, a limitation of the power of injunction, a greater merchant marine, and the speedy completion of the Panama Canal. For the first time a full State ticket was nominated, by acclamation, under the biennial election amendment.

The dissensions among the Republican leaders of the State gave the Democrats an opportunity of which they did not fail to take advantage. At

their State Convention held at Columbus on May. 6, Judson Harmon, Attorney-General under President Cleveland, one of the strongest Democrats in the country, was nominated for Governor. This result was not accomplished without strong opposition, led by Tom L. Johnson, mayor of Cleveland. The delegates to the National Convention were instructed to vote for W. J. Bryan.

The situation in Ohio was considered so critical from the Republican standpoint that it was decided formally to begin the campaign in that State and the opening speech was made by Governor Hughes of New York at Youngstown on Sept. 5. The campaign was fought throughout with great activity on both sides. The most important features, which were more than local in their character, will be found discussed in the article **PRESIDENTIAL CAMPAIGN**. The result of the election on Nov. 3 was another of the remarkable evidences of the development of independent voting throughout the country. W. H. Taft received a plurality of nearly 69,591 votes over W. J. Bryan, but Judson Harmon, the Democratic nominee, was elected over Governor Harris by 19,372 plurality. See **FORAKER, J. B.; PRESIDENTIAL CAMPAIGN**.

The detailed results of the vote for the National and State tickets were as follows: Taft, 572,312; Bryan, 502,721; Debs, 32,795; Chafin, 11,402; Hisgen, 430; Watson, 162; Gilhaus, 721; Harmon, 552,569; Harris, 533,197. Directly following the election active campaigns were begun for the Senatorial nomination for a successor to Senator Foraker. The leading candidates were Theodore E. Burton, a Representative in Congress, Charles P. Taft, a half-brother of W. H. Taft, and Senator Foraker, to succeed himself. Both Mr. Burton and Mr. Taft showed great strength, but late in December the latter withdrew from the contest declaring that he did so for the best interests of the Republican party. Senator Foraker also withdrew, thus leaving Mr. Burton the only strong candidate in the field.

An amendment to permit the Legislature so to modify the present laws regarding taxation as to bring them into harmony with modern developments in industry and finance was defeated at the polls in the November election.

Under the local option law passed by the legislature of 1908 (see paragraph below and **PROHIBITION**) elections were held in various counties of the State in the later months of the year. The general results were large gains for no license.

OTHER EVENTS. A discussion of the efforts of Tom L. Johnson, mayor of Cleveland, to establish a municipal street railway system, with three-cent fares, will be found in the article **JOHNSON, TOM. L.** On Feb. 4, officials of ice companies in Toledo were sentenced to serve three months in the county jail, and to pay costs of prosecution for conspiracy in restraint of trade. On April 3, twenty lumbermen of Toledo were found guilty of conspiracy in restraint of trade under the Valentine Anti-trust Law. They were fined from \$500 to \$1,000 apiece. In February the State suffered from aggressions of "night riders" in Clermont county, and it was found necessary to call out troops for the protection of tobacco growers. On May 5 troops were again employed to stop outrages of "night riders" from Kentucky in the same

district. On Mar. 4, in the burning of the Lake View School at Collingwood, a suburb of Cleveland, 161 children and teachers lost their lives. Fires in Cleveland on Feb. 2 caused a loss of about \$200,000. The mechanical plant of the Cleveland *Plain Dealer* was destroyed. A monument to the late Senator Marcus A. Hanna was dedicated in Cleveland on May 22. The dedicatory address was made by Vice-President Fairbanks, and William H. Taft was present.

LEGISLATION. Among the important acts passed at the legislative session of 1908 were those mentioned below: The Pure Food Law was amended to provide against the misbranding of foods and drugs, and penalties were provided for its infraction. A law was passed authorizing the appointment of a State Board of Health, consisting of eight members, seven of whom shall be appointed by the Governor. This Board has supervision of all matters relating to the preservation of the life and health of the people and has supreme authority in matters of quarantine. An act was also passed to establish a Bureau of Vital Statistics which provides for the prompt and permanent registration of all birth, and deaths occurring within the State. Measures were passed providing for the organization, regulation, and inspection of building and loan associations and savings associations. The laws relating to elections were amended. Corporations were forbidden to contribute to political parties, committees, or organizations, or to use their money in any way for any political purpose whatever. A measure was passed authorizing 35 per cent. of the qualifying electors of any county to petition the commissioners or any judge of the county for the privilege of determining by ballot whether the sale of intoxicating liquors shall be prohibited within the limits of the county (local option). It was provided that all expenses of general or special elections arising from printing and distributing ballots, cards of explanation to the officers of the election and voters, and all other proper and necessary expenses shall be paid out of the county treasury. An act was passed regulating the conducting of primary elections. Laws relating to franchises were amended to provide for the written consent of more than one-half the property owners before the construction of street railway tracks. Laws relating to political elections were amended.

STATE OFFICERS: Governor, Andrew L. Harris; Secretary of State, Corwin A. Thompson; Treasurer, W. S. McKinnon; Auditor, W. D. Guilbert; Commissioner of Education, Edmond A. Jones; Attorney-General, Wade H. Ellis; Adjutant-General, A. B. Critchfield; Commissioner of Insurance, S. J. Vorys—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, James L. Price; Associate Justices, A. N. Summers, W. B. Crew, John A. Shauck, William Z. Davis, William T. Spear; Clerk, Joseph G. Obermeyer—all Republicans.

The State Legislature of 1908 was composed of 20 Republicans and 14 Democrats in the Senate, and 71 Republicans and 45 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

OKLAHOMA. One of the South Central States of the United States, formed in 1907 by the union of Oklahoma and Indian Terri-

tories. Its area is 70,057 square miles. The population, according to Federal estimate in 1908, was 1,503,289.

MINERAL RESOURCES. The most notable feature in the development of the mineral resources of Oklahoma has been the enormous development of the petroleum fields. The Oklahoma-Kansas field, which includes the two States mentioned, rose from fourth place in production in 1906 to first in 1907. In the latter year this field produced 45,933,649 barrels of petroleum, of which the production of Oklahoma is estimated by the United States Geological Survey at 44,300,149 barrels. The value of the product in 1907 was \$18,478,658, of which the oil produced in Oklahoma is estimated to be valued at \$17,824,342. Large developments were carried on throughout the State in 1907. Several large pipe lines were constructed and many wells were sunk. The area of the coal production of Oklahoma is co-ordinate with the territory known until 1906 as Indian Territory. The output shows a notable increase in 1907 over the production of 1906. The figures for the former year were 3,642,658 short tons, with a spot value of \$7,433,914. This is an increase of 782,458 tons, or 27.36 per cent. in quantity, and \$1,951,458 or 35.6 per cent. in value. Only three States, Michigan, Arkansas, and New Mexico showed a greater percentage of increase in 1907 over 1906 than Oklahoma. The number of men employed in the coal mines in 1907 was 8398. There were killed in the mines of the State in 1907 33 men. There were produced in 1907 19,089 short tons of coke, a great decrease from the production of 1906, which was 49,782 short tons. The clay products of the State were valued in 1907 at \$664,512 as compared with a value of \$540,901 in 1906. In the latter figure the value of the production of Indian Territory is included. Among other mineral products of the State are coal products, gypsum, lime, mineral waters, salt, stone, sand and gravel. According to figures by the United States Geological Survey, from whose reports the figures given above are taken, the value of the total mineral production of the State in 1907 was \$26,908,968 as compared with a value in 1906 of \$16,826,686.

It is estimated that the production of coal in 1908 decreased about 25 per cent., as compared with the production in 1907. One of the main causes in the decrease in coal consumption was the increase in the use of oil and natural gas throughout the State. This is considered to be responsible for at least 8 per cent. of the decrease in the production of coal.

MANUFACTURES. There has been rapid industrial growth in the State in the past few years. In 1900 there was \$2,462,000 of capital invested in manufacturing establishments employing 1,294 wage-earners and having an output of products valued at \$5,504,800; in 1905 this had grown to \$11,107,700 of investment, 3199 employees and products of the value of \$16,549,600; and in Sept., 1908, the State Commissioner of Labor reports 650 manufacturing establishments with an approximate output of \$25,000,000 per annum, representing an investment of over \$16,000,000, employing 11,500 people, and having an annual pay roll of \$3,350,000. The leading industry is flour and grist milling, the 78 mills of the State representing an investment of \$3,500,000, and turning out

products valued at \$11,000,000 per annum. The second important industry is the manufacture of cottonseed oil and other products of cottonseed. Thirty-seven cottonseed oil mills in the State turned out products of the value of \$4,697,000 during 1908, showing an increase of 209 per cent. in two years. Eleven plaster mills in operation the past year have turned out gypsum plaster to the value of \$4,250,000; printing and publishing houses report products of \$1,500,000 value; and pressed brick plants nearly a million dollars' worth of building and paving brick. The first cotton spinning plant in the State established at Guthrie in 1907, with an investment of \$200,000 in the plant employs 150 people, and turned out \$350,000 in finished product and netted dividends of nearly 20 per cent. for the stockholders the first year. Large Portland cement mills are going in at Dewey and Ada and with an abundance of limestone and shale and inexhaustible supplies of natural gas for fuel this is destined to be one of the important industries of the State. With oil, gas and coal unlimited, and deposits of all kinds of clays, cements, glass sand, gypsum, asphalt, salt, lead, iron and zinc practically inexhaustible, Oklahoma is destined to become one of the great manufacturing States of the nation.

AGRICULTURE. The acreage, production, and value of the farm crops of the State in 1908 were as follows, according to statistics of the United States Department of Agriculture: Corn, 122,239 bushels, valued at \$62,342,000 from 4,929,000 acres; winter wheat, 15,625,000 bushels, valued from \$13,750,000 from 347,000 acres; oats, 11,250,000 bushels, valued at \$5,062,000 from 450,000 acres; barley, 690,000 bushels, valued at \$400,000 from 30,000 acres; rye, 40,000 bushels, valued at \$32,000 from 3,000 acres; flax, 36,000 bushels, valued at \$40,000 from 6,000 acres; potatoes, 2,106,000 bushels, valued at \$2,064,000 from 27,000 acres; hay, 1,305,000 tons, valued at \$6,525,000 from 900,000 acres. In the production of winter wheat Oklahoma ranked seventh in 1908. The production of corn in 1908 showed a considerable increase over that of 1907, which was 113,265,000 bushels; wheat, too, showed a decided increase over the production in 1907, which was 8,631,000 bushels, or an increase of nearly 50 per cent. The hay crop increased from 470,000 tons in 1907 to 305,000 tons in 1908, while the acreage increased from 392,000 to 900,000. It may be said that all crops in 1908 showed an increase over 1907. Broom corn and Kaffir corn are extensively grown. Fruit cultivation has increased notably in the last few years. The number of farm animals in the State on Jan. 1, 1909, was as follows: Horses, 781,000; mules, 185,000; dairy cows, 338,000; other cattle, 760,000; sheep, 102,000; swine, 1,588,000. The value of the wool clipped in 1908 was estimated at \$71,808.

EDUCATION. The first report of the State Department of Education shows that there were in Oklahoma in 1908, 7,500 organized school districts with 7,500 school-houses, valued at \$7,500,000. The school population (5 to 21 years) was 500,000. The average enrollment was 400,000 and the average attendance, 350,000. There were enrolled in the high schools of the State 10,000 pupils, with 550 teachers; in the common schools, 10,000 teachers; and in the State schools, 350. The average length of

the school term was 120 days. The total expenditure for public schools during the year was \$3,000,000. The following were the institutions under direct State control, with the numbers enrolled in each: State University, Norman, 790; Central Normal School, 1146; Northwestern Normal School, Alva, 870; Southwestern, Weatherford, 661; A. & M. College, Stillwater, 1008; Colored A. & N. University, Lawton, 405; University Preparatory School, Tonkawa, 515; Murray Agricultural High School, Tishomingo, about 150. Connors Agricultural High School at Warner was opened Jan. 1, 1908. The total value of land and equipments of these seven State institutions was \$2,023,100.

FINANCE. The first annual report of the State Treasurer of Oklahoma for the fiscal year commencing Nov. 16, 1907, and ending Nov. 30, 1908, shows receipts during that period of \$251,045 and expenditures of \$218,920, leaving a balance on Nov. 30, 1908, of \$32,124. The chief receipts were from the general revenue fund, \$196,116; common school fund, \$398,362; public building fund, \$75,600; and common school indemnity, \$23,811.

CHARITIES AND CORRECTIONS. The Legislature of 1907 did not establish any correctional institutions, but only provided for temporary, eleemosynary, and penal institutions. A temporary school for educating deaf mutes was established in 1908 and it was opened in September with an enrollment of 123 pupils. An appropriation of \$50,000 was made for a temporary school for the blind and such an institution was opened at Fort Gibson. The Whitaker Orphans' Home at Prior Creek was given to the State by its founder, W. T. Whitaker in 1908 and is now a State institution. It has a population of 72 boys and girls. The legislature appropriated \$30,000 for its maintenance and for building an additional cottage to bring the capacity of the institution up to 150 inmates. The State has accepted the Fort Supply Military Reservation with its buildings and 1760 acres of land, and it is now called the Oklahoma Hospital for the Insane, having a population of 501. 450 of its patients were transferred from the Norman Sanitarium. That institution had, in the latter part of 1908, 387 inmates. The Legislature of 1907 passed a bill providing for the building of a penitentiary at McAlester and an appropriation of \$50,000 was made to defray the expenses of bringing convicts back from the Lansing and Leavenworth (Kansas) penitentiaries, also from the Atlanta (Georgia) Penitentiary. The Lansing Penitentiary had, in Sept., 1908, 575 Oklahoma convicts, and on the same date the Leavenworth Penitentiary had 378, and the Atlanta Penitentiary 43. The Legislature made no appropriation for building and equipping the penitentiary, leaving this for the next Legislature to do. A reformatory bill, drafted by Dr. Samuel J. Barrows, President of the International Prison Congress, was introduced in the Legislature of 1907 and passed the Senate but was not pressed in the House. The bill provides for an unqualified, indeterminate sentence and parole. It will be introduced again in the Legislature of 1909. There are, in the institutions for the insane and in the poorhouses of the State, 163 feeble-minded persons. A bill for the establishment of an institution for the feeble-minded will be intro-

duced in the next Legislature. An effort will be made also to establish an institution for epileptics, of which there are 98 in the institutions for the insane.

POLITICS AND GOVERNMENT. The first Legislative session of the State, which began in Dec., 1907, did not end until May 26, 1908. Among the important measures passed was the dispensary bill, authorized by the State constitution. This act provides for a State agency in charge of a superintendent, appointed by the Governor, and local agencies in every town of over 2,000 inhabitants. These agencies are required to keep a strict account of liquors sold and are not to sell without a physician's prescription. Strict limitations are placed on the use of liquors and the evasion of the law by clubs is provided against. Heavy penalties are provided for the infraction of the law. The passage of the measure was strongly opposed, but it was indorsed by the Prohibition party and had the support of Governor Haskell. The State dispensary system was abolished by a vote at the election of Nov. 3 and Governor Haskell issued a proclamation declaring it abolished on Dec. 3. Residents in Oklahoma have now no lawful means of purchasing liquor even for medicinal purposes. The Governor ruled that pharmacists may purchase alcohol for medicinal preparations. A recent opinion of the Oklahoma Supreme Court, by Justice R. L. Williams, holds that the vote of the people in November did not abolish the dispensary system except in so far as that system had been made operative in towns of less than 2,000 population and county seats regardless of population. The State question submitted in November combined a legislative act with a constitutional amendment proposal. The legislative act proposed the State agency and machinery, and the constitutional amendment proposed that agencies should be established in towns of less than 2,000 population as provided by the constitution. The Supreme Court held the constitutional amendment defeated but the remainder of the law in force. Governor Haskell, prior to the issuance of the opinion, issued a proclamation declaring the State Dispensary defeated on the ground that it did not receive a majority of all votes cast on that question. He refused to reopen the State agency, but held that pharmacists may purchase alcohol of the State agency which has been retained in operation. A bill was passed putting a tax on all incomes of more than \$3,500 a year, and a graduated tax on all land holdings of more than 640 acres. Measures were enacted providing an inheritance tax; prohibiting overcharges by agents of railroads, express, telephone and telegraph companies; providing for the nomination of Presidential electors by primaries; prohibiting the sale of mineral lands prior to 1905; and for jury trials in Supreme Court cases. An anti-trust bill, passed by both houses, was vetoed by Governor Haskell. On April 13, the United States Supreme Court affirmed the decision of the Supreme Court of the State in holding the Gulf Express Company a combination in restraint of trade, and ruling that a lease made by it with the Shawnee Compress Company of Shawnee, Oklahoma, was void, as against public policy and the Sherman anti-trust law. On April 28 the Attorney General began suit against railroad companies passing through the State to stop liquor shipments over

their lines. The bank guaranty law of the State was held by Attorney General Bonaparte, on Aug. 1, to be illegal, but the State Supreme Court held it valid in a decision handed down on Sept. 10. (See **BANKS AND BANKING**.) The St. Louis and San Francisco Railroad had its charter to operate in the State revoked on Aug. 29, and on Sept. 2, the Missouri, Kansas and Texas Railway forfeited its charter. See **RAILWAYS**.

On Dec. 8, the United States government brought suit against Governor Haskell and eight other prominent Oklahomans, including United States Senator R. L. Owen, charging them with the use of "dummies" in securing land valued at \$1,500,000 at the opening of Muskogee Reservation. The suit was brought in behalf of the Creek Indians, formerly owners of the land.

CONVENTIONS AND ELECTIONS. In the Democratic primaries held on Feb. 15, the counties of the State unanimously indorsed W. J. Bryan for president, and the State Convention was little more than a formality, ratifying this action. The Republican State Convention on Mar. 11 instructed delegates to vote for W. H. Taft for president, and passed resolutions endorsing President Roosevelt and declaring for strict enforcement of prohibition and against the dispensary. Primary elections were held on Aug. 4 for nominations for Senator. Thomas P. Gore was nominated for re-election by the Democrats, and Dennis T. Flynn was nominated by the Republicans. The part taken by Governor Haskell in the National campaign, and events connected therewith, had more than a local interest, and are noticed in the article **PRESIDENTIAL CAMPAIGN**. In the election of Nov. 3 the vote cast for the National ticket was as follows: Bryan, 122,406; Taft, 116,558; Debs, 21,729; Watson, 436; Hiagen, 47. See also **HASKELL, C. N.**

OTHER EVENTS. On Feb. 12, the Committee appointed by the Constitutional Convention of 1907 to advise the State Legislature as to the advisability of purchasing 440,000 acres of segregated coal and asphalt lands in the State, recommended the purchase of these lands at a price not exceeding \$10,000,000. In July suits were begun by the Federal Department of Justice to annual 3,000 to 4,000 deeds to land in the State. These lands which were formerly owned by the five civilized tribes of Indians, the government maintains were obtained by frauds. There are more than 1,700 defendants in the suits, scattered over the country. A recalcitrant band of the Creek Indians, known as the "Snakes," while in council at Hickory Ground, near Henrietta, resolved against the payment of taxes. Many Indians with negro blood predominating were armed as in olden days. No trouble was threatened, however, until the citizens became fearful lest the Indians become troublesome. Some citizens armed themselves and an unofficial appeal was made to the Governor for military protection. Two troops of infantry were held in readiness but never went to the scene.

The Fort Sill affair could hardly be called a riot. Drunken soldiers at Lawton, near Fort Sill, invaded a negro dive and a shooting took place, one soldier being mortally wounded and another slightly. A more serious race riot broke out in Okmulgee on Nov. 14 as the result of an attempt of the Sheriff of the county

to arrest a negro who had beaten an Indian. A mob gathered, several hundred shots were fired, and the Sheriff, two policemen, and four negroes were killed. Trouble was feared because of the large negro population in Okmulgee. State troops were held in readiness, but were not sent. On May 11, a tornado caused great damage in the towns of the State. Several persons were killed and many injured. Floods prevailed in the State in October and caused much damage.

LEGISLATION. The first Legislature assembled on the first Monday in December, 1907 and adjourned May 26, 1908. The important measures passed are noted above.

STATE OFFICERS: Governor, C. N. Haskell; Lieutenant-Governor, George Bellamy; Secretary of State, Bill Cross; Treasurer, J. A. Meneff; Auditor, M. E. Trapp; Attorney-General, Chas. West; Adjutant-General, F. M. Canton; Commissioner of Insurance, T. J. McComb; Commissioner of Education, E. D. Cameron—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, R. L. Williams; Associate Justices, Jesse J. Dunn, M. J. Kane, Jno. B. Turner, and Samuel W. Hayes; Clerk of the Court, W. H. L. Campbell—all Democrats.

The State Legislature of 1908 was composed of 5 Republicans and 39 Democrats in the Senate, 18 Republicans and 91 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

OLD-AGE PENSIONS. The year 1908 was notable for a world-wide agitation of the subject of old-age pensions. The subject was actively discussed in the United States, England, France, Austria, Italy, New Zealand, and Australia. The discussion in the United States was the result of the English agitation resulting in the enactment of the law noted below. This discussion seemed to indicate that the prevailing opinion in the United States strongly favors some provision for the old-age of workmen, but prefers that a longer period of development be given to the various voluntary plans now being tried, such as industrial insurance, mutual benefit associations, and the pension schemes of corporations. Among industrial employers, trusts and railroads have been foremost in the introduction of plans for the retirement of aged employees on part pay. The modern industrial system with its rapid and intense pace demands young and vigorous men; moreover men are used up earlier than under less strenuous conditions. The specialization demanded unfits a man for other equally remunerative work, once he reaches his prime. Hence many corporations have found it not only a necessity, but good business to introduce pension systems. Among scores of corporations having pension systems may be mentioned the International Harvester Company, the Standard Oil Company, the United States Steel Corporation, and the Powder Trust, while among leading American, including Canadian, railways, the Vanderbilt lines stand almost alone as not having such a system. Paralleling the growth of these plans are the schemes in use in a steadily increasing number of cities for pensioning teachers, policemen, and firemen, after a specified term of service or at a certain age. Larger cities, almost without exception, now have such schemes.

ENGLAND. An old-age pension bill was passed by the House of Commons in July by a vote of 315 to 10, to become effective Jan. 1, 1909. The passage of this law in deference to the insistent demands of organized labor was assured more than a year before it actually was accomplished, the delay being due to exchequer readjustments to provide the necessary funds. The new law provides pensions for all persons at least 70 years of age, who are citizens of the United Kingdom, and have resided there during the 20 years preceding, and who do not belong to the delinquent, defective, or criminal classes, and who are not public dependents. This last disqualification prevents local guardians of the poor from unloading aged paupers upon the pension fund; it disqualifies about 280,000 persons. Up to Dec. 31, 1908, pensions had been granted to 596,038 persons, or 24,000 more than had been estimated for the first year. On this basis the cost for 1909, including £300,000 for administration, was put at £7,750,000. The law provides a sliding scale of pensions, the amount granted depending on the income from other sources. The largest pension is 5 shillings per week to all qualified persons who have not more than £21 income per year. Pensions of 4, 3, 2, and 1 shillings per week are granted to higher income classes; thus persons having incomes between £28 17s. 6d., and £31 10s. will receive only one shilling per week. Persons having more than £31 10s. income per year will receive no pension. The pension is thus a supplement to the small incomes of aged but respectable working folk. The post office will be utilized in distributing the pensions. For discussion of the political features of the bill, see GREAT BRITAIN, paragraph *Old-Age Pensions*.

FRANCE. A moderate old-age pension plan on a contributory basis was introduced in France in 1905. This grants pensions of five to twenty francs per week to persons at least 70 years of age, and persons who are permanently infirm, incapacitated or incurable. The original estimate of the public expense was \$3,500,000 per year, to be shared by the State, the departments, and the communes. So great has been the increase in the expense that the estimate for 1909 was \$18,800,000. The number of beneficiaries increased from 190,000 the first year to 340,000 in 1907, 470,000 in 1908, and not fewer than 495,000 in 1909. The demand for a more liberal and extensive plan has been very strong. In February, 1906, the Chamber of Deputies passed a bill granting an annual pension to all workmen over sixty who had worked for thirty years. The amount of the pension was to be increased slowly by such stages that at the end of thirty years everyone eligible would be receiving a minimum of \$6 per month. The bill provided that workmen should contribute 2 per cent. of their wages and that employers should contribute a like amount. The government should make up any amount still needed to provide the minimum pension. This bill was blocked for many months by the Senate, on the very reasonable ground that the government should furnish it with information as to the probable expenditure necessitated by the measure. The estimates of such expenditure ranged from \$28,000,000 to \$180,000,000 per year. As the Ministry was fully pledged to the measure, an overwhelming vote by the Deputies early in 1908, demanding that favorable consideration for it be secured in the Senate,

brought about a compromise. By this the age of eligibility was raised to sixty-five years, domestic servants and small farmers were excluded from the benefits of the plan, thus throwing out about one-half of the 2,600,000 eligibles, and the government's liabilities were limited for the present at \$20,000,000 annually. The bill had not yet become a law at the end of the year.

AUSTRIA. In July the Lower House of the Reichsrath unanimously adopted a resolution, introduced by the Social Democrats, in favor of workmen's insurance against old-age and sickness. The Minister of the Interior undertook the responsibility of introducing such a measure in November, but it was not pushed forward with sufficient rapidity for enactment in 1908.

ITALY. Much interest was aroused by the sessions of the International Congress on Social Insurance at Rome, Oct. 12-16. The discussions developed a strong sentiment in favor of some scheme of compulsory insurance for workmen. Reports were presented at the Congress showing that in Germany, university and technical high school lectures and the issue of a special periodical have been instituted to develop wider knowledge of the benefits of social insurance.

NEW ZEALAND. In July, the Premier announced the plan of a proposed scheme of old-age pensions, on a contributory basis. The plan called for small contributions from workmen to be supplemented from State funds. Eligibles were to be sixty-five years of age, and the pension was fixed at one-half pound (\$2.50) per week. In October the Premier presented to the Legislature an estimate of expenditures necessary to carry out the plan, showing £351,000 in 1909 and increasing very slowly thereafter. Such serious opposition developed to the contributory feature that inaction resulted.

AUSTRALIA. The Commonwealth Parliament passed an old-age pension scheme, granting 10 shillings weekly to all indigent persons over 65 years of age, who have resided in the Commonwealth 20 years. The plan also provides for pensioning persons over 16 years of age, who are permanently incapacitated. The estimated cost is \$9,000,000 annually.

OLYMPIC GAMES. The fourth Olympiad was held in the Stadium, Shepherd's Bush, London, July 13-25. The attendance at the games was much smaller than had been anticipated, while the conduct of the games also was subjected to considerable criticism, especially on the part of the United States representatives. In order to avoid a recurrence of any similar unpleasant features in the future, a movement was started to put the entire control of the games in the charge of an international committee.

The Olympic events included track and field, shooting, cycling, swimming, rowing, wrestling, tennis, racquets, archery, fencing, etc. All events considered, the United Kingdom scored 155 points, the United States 131, Sweden 31, Germany 21, and France 15. The United States was not fully represented in any except the track and field events, in which the representatives of that country made a remarkable showing, scoring a total of 114½ points. The United Kingdom was second, with 66½, and Sweden third, with 12½. Thirteen new Olympic records were made in the track and field events, nine by the United States, three by the United King-

dom, and one by Sweden. These new records include: 800-metre run, Sheppard (U. S.), 1m. 52½s.; 1500-metre run, Sheppard (U. S.), 4m. 3¾s.; 110-metre hurdle, Smithson (U. S.) 15s.; 400-metre hurdle, Bacon, (U. S.), 55s.; 5 mile run, Voight (U. K.), 25m. 11¼s.; 10 mile walk, Larner (U. K.), 1h. 15m. 57¾s.; running broad jump, Irons (U. S.), 24 ft. 6½ in.; running high jump, Porter (U. S.), 6 ft. 3 in.; hop, skip and jump, Ahearne (U. K.), 48 ft. 11¼ in.; pole vault, Gilbert and Cook (U. S.), 12 ft. 2 in.; hammer throw, Flanagan (U. S.), 170 ft. 4½ in.; discus throw (Greek style), Sheridan (U. S.), 124 ft. 8 in.; javelin throw (free style) Lemming (Sweden), 178 ft. 7½ in.

A summary of the track and field events, including winner, second, and third, countries represented, and time, follows: 100 metre run, Walker (So. Africa), Rector (U. S.), Kerr (Canada), 10½s., equalling the record; 200-metre run, Kerr (Canada), Cloughan (U. S.), Cartmell (U. S.), 22¾s.; 800-metre run, Sheppard (U. S.), Lunghi (Italy), Braun (Germany), 1m. 52½s.; 1500-metre run, Sheppard (U. S.), Wilson (U. K.), Hallows (U. K.), 4m. 3¾s.; 110-metre hurdle, Smithson (U. S.), Garrels (U. S.), Shaw (U. S.), 15s.; 400-metre hurdle, Bacon (U. S.), Hillman (U. S.), Tremer (U. K.), 55s.; 3200-metre steeplechase, Russell (U. K.), Robertson (U. K.), Eisele (U. S.), 10m. 47¾s.; 5-mile run, Voight (U. K.), Owen (U. K.), Svanberg (Sweden), 25m. 11½s.; 3-mile team race, United Kingdom, United States, France, 14m. 39¾s.; 1600-metre relay race, United States, Germany, Hungary, 3m. 20¾s.; 3500-metre walk, Larner (U. K.), Webb (U. K.), Kerr (Canada), 14m. 55s.; Marathon race, Hayes (U. S.), Hefferon (So. Africa), Forshaw (U. S.), 2h. 55m. 18s.; standing broad jump, Ewry (U. S.), Tscilitiras (Greece), and Biller (U. S.), 10 ft. 11½ in.; standing high jump, Ewry (U. S.), Tscilitiras (Greece), and Biller (U. S.), tied for second, 5 ft. 2 in.; running broad jump, Irons (U. S.), Kelly (U. S.), Bricker (Canada), 24 ft. 6½ in.; running high jump, Porter (U. S.), Sornoty (Hungary), Leahy (U. K.), and André (France), tied for second, 6 ft. 3 in.; pole vault, Gilbert (U. S.) and Cook (U. S.), tied for first, Campbell (U. S.), and Archibald (U. K.), tied for second, 12 ft. 2 in.; hop, skip and jump, Ahearne (U. K.), McDonald (Canada), and Jacobs (Canada), tied for second, Larsen (Norway) third, 48 ft. 11¼ in.; hammer throw, Flanagan (U. S.), McGrath (U. S.), Walsh (Canada), 170 ft. 4½ in.; shotput, Rose (U. S.), Horgan (U. K.), Garrels (U. S.), 46 ft. 7½ in.; discus throw (free style), Sheridan (U. S.), Giffin (U. S.) Horr (U. S.), 134 ft. 2 in.; discus throw (Greek style), Sheridan (U. S.), Horr (U. S.), Jarvinen (Finland), 124 ft. 8 in.; javelin throw (free style), Lemming (Sweden), Doriza (Greece), Halse (Norway), 178 ft. 7½ in.; javelin throw (middle), Lemming (Sweden), Halse (Norway), Nilsson (Sweden), 179 ft. 10½ in.

In the 400-metre run the order of finish was Carpenter (U. S.), Robbins (U. S.), Halswelle (U. K.). The officials, however, disqualified Carpenter for an alleged fouling of Halswelle and ordered the race re-run. The United States committee refused to accept this ruling, and Halswelle covered the course alone in 50s.

The Marathon race undoubtedly aroused more general interest throughout the world than any

other event. Dorando Pietri, the Italian runner, was the first to reach the Stadium, but his condition was such that he collapsed before the finish and bystanders including, it was alleged, some of the officials, carried away by their admiration for his pluck, rushed upon the track and carried him bodily across the line. The Italian flag was then run up as an indication that Dorando had been awarded the race. The decision of the judges was immediately protested, as Hayes (U. S.) had meanwhile finished. After some deliberation the decision was reversed and Hayes pronounced the winner.

In the wrestling events, G. W. Mehnert (U. S.) won the catch-as-catch-can (119 pounds) and G. S. Dole (U. S.), the featherweight bout. Other catch-as-catch-can events and winners were: Lightweight, Relwyskow (U. K.); middleweight, Bacon (U. K.); heavyweight, O'Kelly (U. K.). The Græco-Roman events and winners were: Lightweight, Porro (Italy); middleweight, Martensson (Sweden); light heavyweight, Wakeman (Finland); heavyweight, Weisz (Hungary).

The United Kingdom won the principal rowing events, the United States entering no contestants, largely it was said because of the ruling which barred amateur oarsman who worked for a living. The English amateur championship was won by H. T. Blackstaffe of the Vesta Rowing Club. Magdalen College, Oxford, defeated the Leander Crew in the four-oared race, and Leander defeated the Belgian crew in the eight-oared race. The principal cycling events were: 20-kilometres, won by Kingsbury (U. K.) in 34 m. 13½s.; 585-metre won by Johnson (U. K.) in 51½s.; 2000-metre (tandem), won by Schell and Aufray (France) in 3m. 7½s.; 5000-metres, won by Jones (U. K.) in 8m. 36½s.; 100 kilometres, won by Bartlett (U. K.) in 2h. 41m. 48½s. The United Kingdom won in archery, racquets, tug of war, and swimming, the United States in shooting, Sweden in gymnastics, and France and Hungary in fencing. See SHOOTING; SWIMMING; LAWN TENNIS; etc.

OMAN. An independent State of southeastern Arabia. Area, about 75,000 square miles; population, about 500,000. Muscat, the capital and principal port, with its suburb, Matra, has about 25,000 inhabitants. In 1907-8 the imports and exports amounted to Rs. 9,846,560 and Rs. 4,245,450 (1 rupee = 32.44 cents) respectively. The leading imports are coffee, piece goods, arms and ammunition, kerosene oil, yarn, wheat, and sugar. The principal exports in 1907-8 were: Dates, Rs. 1,731,300; pearls, Rs. 250,000; mother-of-pearl, Rs. 71,000; dried limes, Rs. 83,950; fish, Rs. 70,000; hides and skins, Rs. 60,000; fruits, Rs. 42,200. The trade is largely in the hands of East Indians, of whom there are about 1,300 in Oman, and over one-half the foreign trade is with India. Other countries largely participating in the trade are Great Britain, Belgium, France, Persia, and the United States. The ports were entered in 1907-8 by 678 vessels, of 426,824 tons. The Sultan is under agreement with Great Britain to cede no territory to any other Power. A British Political Agent resides at Muscat. The present Sultan is Seyyid Faysal ben Turki, who succeeded his father on June 4, 1888.

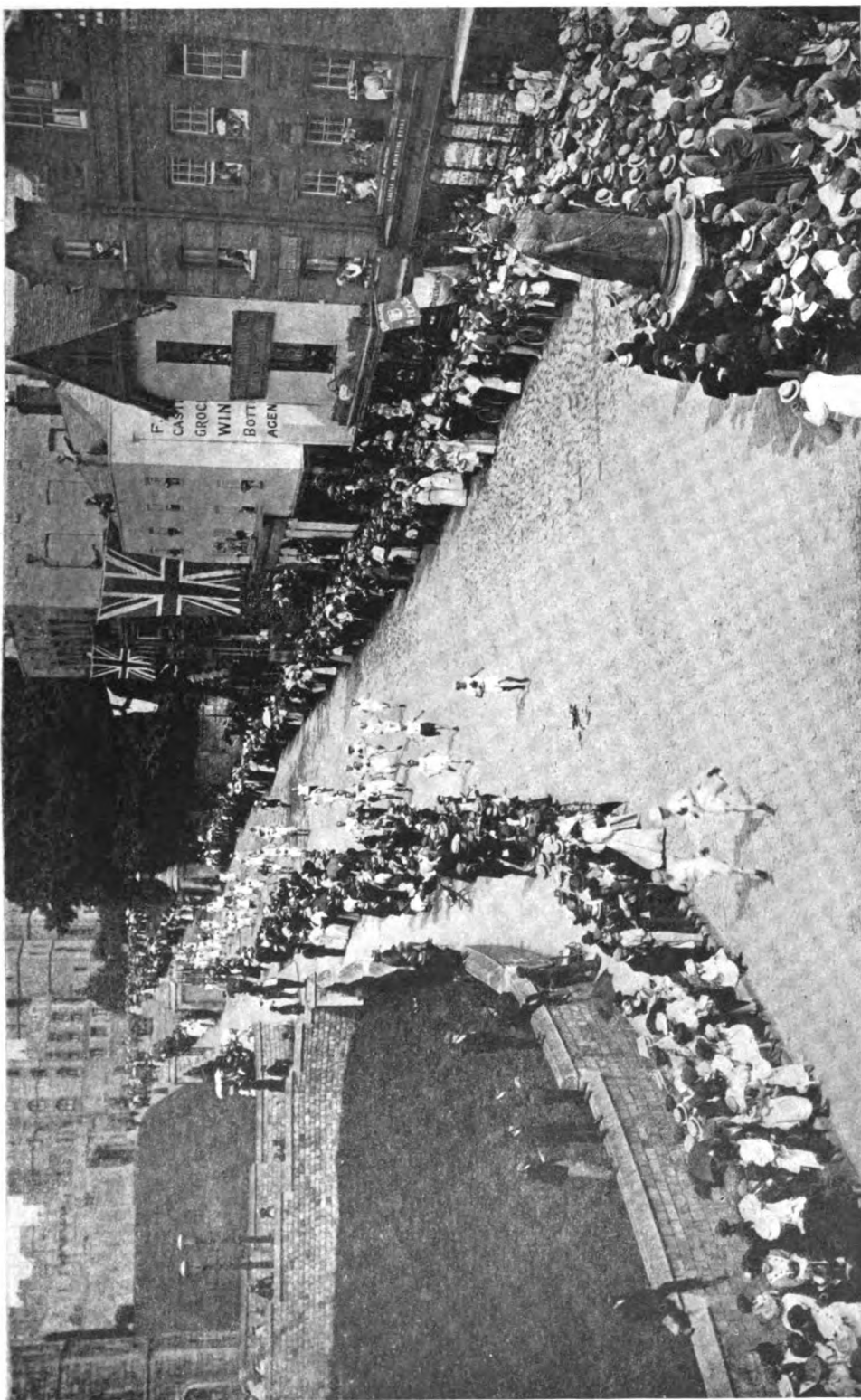
ONTARIO. A province of Canada. Area, 260,862 square miles. Population in 1901,

2,182,947. Toronto, the capital, had 208,040 inhabitants in 1901. Ottawa, the capital of the Dominion, had 59,928 inhabitants. For details respecting population, education, production, commerce, etc., see CANADA. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada and acting through an Executive Council, or responsible ministry, and a unicameral Legislative Assembly of 98 members, elected for four years. The present Lieutenant-Governor is Col. John Morrison Gibson. The present Premier is Sir James P. Whitney.

HISTORY. The last session of the eleventh Parliament of Ontario began in February, and was noteworthy for the number and importance of the laws enacted. Among these were acts adopting more modern methods of dealing with criminals and utilizing their labor so as not to compete with free labor; increasing the representation in the legislature; raising to twelve years the age limit for employment of children in shops; legalizing by-laws and agreements between the municipalities and the hydro-electric Commission; amending the liquor laws; and providing that hereafter the timber and minerals not already disposed of on lands acquired by actual settlers shall be the property of the settlers. A scheme of law reform with a view to decreasing appeals by establishing a single court therefor had been prepared but was held over till next session. On the expiration of the term of Sir Mortimer Clark, as Lieutenant-Governor, Hon. J. M. Gibson was appointed to succeed him. Hon. N. Monteith, Minister of Agriculture, resigned and James S. Duff was appointed in his place. The elections for a new legislature were held on June 8, and Premier Whitney's administration won a decisive Conservative victory, the Liberal opposition, led by Hon. A. G. McKay, being put in a small minority of 18 as against 85 for the Conservatives.

OPERA. See MUSIC.

OPIUM. According to the latest estimates Chinese grown opium amounts yearly to 325,000 piculs—a picul equalling 133 pounds. Imported opium amounts to 54,000 piculs. In 1906 the Chinese government issued an edict commanding its viceroys, the Tartar generals, and governors of provinces to join in suppressing the opium habit. (See CHINA, *Production, Commerce, and History*.) On Mar. 8, an effective prohibition against the illicit use of opium went into force in the Philippines. Secretary Root invited those nations having territorial possessions in the Far East to a conference, Great Britain, Germany, France, Portugal, the Netherlands, China and Japan being represented. These powers consented to appoint three commissioners each to meet the American Commissioners on Jan. 1, 1909, at Shanghai, China. In the meantime, each national commission was to study the subject from its own point of view. Hamilton Wright, acting chairman of the American Commission, called attention to the undoubted growth of the opium habit in the United States. Although the Chinese population is smaller than it was 20 years ago, the importation of chându, or smoking opium, has been more than doubled. This can only mean an increase of its use among the whites. Against Kane's estimate in 1882, that there were 6,000 white opium smokers in the United States, is



Photograph by Edwin Levick, New York

THE OLYMPIC GAMES OF 1908—THE MARATHON RACE
THE START, LEAVING THE GATES OF WINDSOR CASTLE

that of Wright, who, in 1908, believed there were 5,000 in New York City alone, and over 100,000 in the United States, at that time. The imports of crude opium had doubled and handlers of the produce estimate that 60 to 90 per cent. of the morphine manufactured therefrom is used in illicit ways. In the Federated Malay States the so-called "missionary treatment" of the opium habit was extensively used with reported signal success. An infusion or other preparation of the "Jungle Plant" (*Combretum sundiacum*) was used. This plant is described by Sir George Young in his *Materials for a Flora of the Malayan Peninsula*, and its use for a cure for opium addiction is believed to have been discovered by Chinese wood cutters. See COCAINE HABIT.

ORANGE RIVER COLONY. A British possession in South Africa. Area, 50,392 square miles; population, 1907, 447,100. The number of whites was 142,679 in 1904. Bloemfontein, the capital, had 33,032 inhabitants in 1905 (13,512 whites, 3,487 troops, 16,033 natives). Other towns, with their populations in 1904, are: Kroonstad, 5,797; Jagersfontein, 5,650; Harri-smith, 5,306; Ladybrand, 3,207. In 1907 there were 17,700 pupils in the government schools. Children may choose English or Dutch as the medium of instruction. The principal mineral products are diamonds and coal. Gold has been found. Oil-bearing strata exist in the Ladybrand district. Of the 1,628,713 acres of public land existing at annexation, 1,285,000 have been distributed among 718 settlers. Grazing is the principal occupation, and live stock is numerous. The imports and exports in 1907-8 amounted to £3,317,770 and £3,789,653 respectively. The imports are chiefly cotton goods and apparel, timber, hardware, foods, and drinks. The principal exports are wool, mohair, hides and skins, wheat, ostrich feathers, and dairy produce. The colony is included in the South African Customs Union. (See BRITISH SOUTH AFRICA.) The railways are administered together with those of the Transvaal (q. v.) by the Inter-colonial Council, under the name of the Central South African Railways. There are over 4,000 miles of telegraph line. Responsible government was established on July 1, 1907. The Legislative Council consists of 11 members; the Legislative Assembly, of 39 members. The Governor in 1908 was Sir Hamilton Goold-Adams; the Premier, A. Fischer. The finances are partly administered by the above mentioned Inter-colonial Council. The revenue in 1907-8 was £740,367; the expenditure, £33,233.

HISTORY. On Dec. 18, 1907, the first Legislative Assembly under the new constitution opened with Mr. Abraham Fischer as Premier. The Dutch party had won a complete victory in the election, obtaining 30 out of the 38 seats. Only the most urgent business was transacted at this session. The regular business session began on May 13. The proceedings were conducted first in English and afterwards in Dutch. The chief debate was occasioned by the Education Bill, which, however, was finally carried toward the end of August on the basis of a compromise whereby Dutch and English were put on the same footing in the schools, the parents having the right to choose either for their children. No educational officer was to be dismissed for ignorance of the Dutch language.

Education was made compulsory and a Council of Education was established.

OREGON. One of the Pacific Division of the United States. Its total area is 96,699 square miles. The population, according to Federal estimate in 1908, was 495,138.

MINERAL RESOURCES. The mineral production of the State in 1907 was valued at \$2,630,587, which was almost exactly the value of the product of 1906, which was \$2,640,406. The most important product in point of value was gold, of which there were mined in 1907 59,124 fine ounces, valued at \$1,222,200 as compared with 66,123 fine ounces valued at \$1,366,900 in 1906. Clay products rank next in point of value, amounting in 1907 to \$545,839 as compared with a value of the product in 1906 of \$506,192. There were produced in 1907 518,694 pounds of copper valued at \$103,739; in 1906 there were produced 545,859 pounds, valued at \$105,341. Other mineral products of the State in order of their value are sand and gravel, stone, silver, lime, and mineral waters.

It is not expected that the final returns for 1908 will show much variation in the usual figures for production in the mines of the State. A few concentrating and cyaniding plants and small smelters were installed in the State throughout the year, and a few new mills also were built. The Director of the Mint estimates the production of gold for 1908 at \$1,119,528, as against \$1,122,200 in 1907. The silver production is small.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 440,000 bushels, valued at \$343,000 from 16,000 acres; winter wheat, 10,858,000 bushels, valued at \$9,121,000 from 468,000 acres; spring wheat, 4,290,000 bushels, valued at \$3,604,000 from 260,000 acres; oats, 9,519,000 bushels, valued at \$4,474,000 from 285,000 acres; barley, 1,798,000 bushels, valued at \$1,061,000 from 62,000 acres; rye, 162,000 bushels, valued at \$138,000 from 9,000 acres; potatoes, 4,257,000 bushels, valued at \$2,895,000 from 43,000 acres; hay 828,000 tons, valued at \$7,700,000 from 414,000 acres. The agricultural development of the State has been greatly assisted in recent years by a number of important irrigation projects carried on by the United States Reclamation Service. (See IRRIGATION.) The area devoted to the cultivation of apples, prunes, and apricots has been greatly extended in recent years. The number of farm animals by thousands on Jan. 1, 1909, were as follows: Horses, 299,000; dairy cattle, 169,000; other cattle, 743,000; sheep, 2,634,000; swine, 290,000. The wool clipped in 1908 was estimated at 16,500,000 pounds, valued at \$2,659,800.

MANUFACTURES. The value of the products of establishments classed as factories was \$55,525,000 in 1905, against \$36,592,700 in 1900, an increase of 51.7 per cent. The values due to leading industries in 1905, and (in parentheses) the per cent. of increase over 1900, were: Lumber and timber products \$12,483,900 (21.7); flour and grist mill products, \$8,467,000 (38); slaughtering and meat packing, \$2,907,100 (77); printing and publishing, \$2,664,100 (86.3); planing mill products, \$2,653,300 (30.5), and canning and preserving fish, \$2,577,746 (44.1). Portland was credited with \$28,651,300 of the

total value of products, and Astoria with \$3,-092,600.

FISHERIES. The most important product of the fisheries of Oregon is salmon. There were packed of this fish in 1907 22,908,700 pounds, a falling off from the figures of 1905, which were 24,425,291 pounds. Of the fish packed, 19,010,120 were chinooks. This pack was taken entirely from the Columbia River. There were packed from coast streams in 1906, 8,043,690 pounds. The State, through its fish commissioners, has done good service in the artificial propagation of fish, and there is little fear that the production will decrease from diminution of the quantity of fish in the rivers. The legislature in 1905 made a special appropriation of \$25,000 for restocking the Columbia River and coast streams with fish.

EDUCATION. Laws passed at the legislative session of 1907 had a beneficial effect upon the development of education in Oregon in 1908. The compulsory education law brought the average daily attendance for the year 1908 to 94,333, as against 76,954 in 1907. The percentage of attendance in 1908 was 93. The first annual convention of County Superintendents was held at Salem, Sept. 10th and 11th, 1908. Nearly every county superintendent in the State was present and many important measures were discussed. This convention prepared many measures to be submitted to the legislative session of 1909. The law providing for a district school officers' convention was also productive of much good. This convention was held in each county and as one result of the meetings, the number of districts voting a special tax to carry on their schools is increasing. The Legislature of 1907 raised the minimum tax levy of the schools from \$6 to \$7 per capita for children of school age. It also provided that every school must have and display a United States flag. A law providing \$125,000 per annum as a continuing fund for the support of the State University was referred to the people and approved by them. The school population for 1908 (ages 5 to 19 inclusive) was 160,042. The teachers numbered 4,243; of these 3,460 were women and 783 men. The average monthly salary of men teachers was \$65.64; of women, \$50.16; the average monthly salary of rural teachers was \$49.60; of assistant teachers in graded schools, \$56.35; of principals, \$80.87. The average yearly salary of State Superintendents was \$1,576.17. An evidence of the advance of Oregon in educational affairs is shown by the remarkable growth of high schools in the State within the last few years. During 1908 there were in operation 43 four-year high schools; 15 three-year; 43 two-year; and 37 one-year. Districts are permitted to unite for high school purposes and many are taking advantage of this privilege.

FINANCE. The biennial report of the State Treasurer for the fiscal year 1907-8, showed a balance on hand Oct. 1, 1906, of \$415,340. The receipts included transfers for the two years ending Sept. 30, 1908, \$5,770,103; the disbursements, including transfers for the two years for the same period, were \$5,527,124, leaving a balance on hand Sept. 30, 1908, of \$658,320. The educational funds of the State included the following amounts on Sept. 30, 1908: Common school fund, \$5,429,930; agricultural college fund, \$195,878; university fund, \$104,205. The net income of the common school fund in 1908

was \$256,067, of the agricultural college fund, \$24,065, and of the University fund, \$12,153. The receipts from the inheritance tax for the year 1907-8 were \$44,569. The State has no debt bonded or otherwise.

CHARITABLE AND CORRECTIONAL INSTITUTIONS. Among the laws of importance to charitable and correctional institutions passed by the legislative session of 1906 were those providing for special juvenile courts for dependent, neglected or delinquent children, and for the establishment of an institution for the feeble-minded and epileptic children. The State Reform School, the School for the Deaf Mutes, and the Institution for the Blind at Salem had an enrollment in 1906 of about 120, 80, and 30 respectively. Appropriations for all the State charitable and penal institutions for 1908 amounted to \$850,000, the amount spent in maintenance and improvements, \$60,800. The juvenile courts have proved to be a wise step and have been of great assistance in helping the Reform School and the youth of Oregon. The new buildings for the Institution for the Feeble-minded were completed during 1908.

POLITICS AND GOVERNMENT. The primary election of June 1 was among the most important ever held in the history of the State, and, in one of its results, one of the most unique ever held in this country. While there were important measures at issue, the most important question to be decided was the nomination for United States Senator. This primary election was held under the direct primary law, passed in 1904. By this law the popular vote for United States Senator was not merely advisory, but its result was made binding upon the individual members of the legislature by pledges which they had made previous to election, to vote, if elected, for that person who should receive a plurality of the vote cast by the people for the Senatorship. The pledge is, however, voluntary. Oregon is normally a Republican State and in the election of June 1 the Republican representatives were reelected by majorities of approximately 20,000 votes each. In the senatorial primary election, Governor George E. Chamberlain, a Democrat, received a majority over H. M. Cake, the Republican candidate, of 1,522. Mr. Cake had previously, on Apr. 17, defeated at the Republican primaries Senator Fulton, who was seeking reelection. Governor Chamberlain had been nominated as the Democratic candidate. Thus, while the legislature was strongly Republican, its members were bound by pledges made prior to their election to vote for Mr. Chamberlain for Senator, although he is a Democrat. In this election 13 counties voted for no license under the local option law, making a total of 21 counties in the State having no license. Majorities in other counties against prohibition were small, and in all of them some precincts went "dry," including several precincts in the city of Portland. The number of initiative and referendum measures to be decided by the election was 19. Four of these were constitutional amendments referred to the people by the legislature, four were legislative measures by petition of the people on which the referendum had been ordered, and the other eleven were laws or constitutional amendments which the people had proposed by initiative petition. Among the measures which were defeated were the "open town" bill, which was

designed to nullify the local option law; woman suffrage; and a measure providing for single taxation. The adoption of two to one majorities for the recall of public officers greatly extended direct legislation. A proportional representation amendment to the State constitution was likewise adopted. A corrupt practices act was carried and a measure instructing members of the legislature to vote for the people's choice for United States Senator.

CONVENTIONS AND ELECTIONS. The results of the elections held in April and June are given in the paragraph above. On May 14 the Republican State Convention for the nomination of delegates to the National Convention met at Portland. The convention gave unanimous indorsement for the candidacy of Wm. H. Taft. On June 9, the Democratic State conventions to choose delegates to the National Convention elected delegates pledged to William J. Bryan for President. In the election of Nov. 3, William H. Taft received a plurality over William J. Bryan of over 24,000 votes. The detailed vote for the National ticket was as follows: Taft, 62,530; Bryan, 38,049; Debs, 7,339; Chafin, 2,682; Hisgen, 289.

OTHER EVENTS. On Jan. 6, the United States Supreme Court reversed the conviction of former Representative John N. Williamson, convicted of complicity in the Oregon land frauds. This conclusion was based on the error of the trial court in holding that the Timber and Stone Acts, under which the offenses were committed, required affidavits for proof of final entry. The court decided that the law contained no such requirement and that the land office had no power to write into it such regulations. As this was a fundamental error, the judgment of conviction must be reversed. As the prosecution of other land fraud cases was conducted upon practically the same assumption as was this trial, the decision had a serious effect on their prosecution. On Feb. 8, John H. Hall, former United States District Attorney, indicted for conspiracy with the Butte Creek Land, Livestock and Lumber Company to maintain an alleged illegal fence which enclosed 20,000 acres of public land in Wheeler county, was found guilty. Many other indictments were found under this charge, but this was the only case tried. On June 9, a special grand jury at Portland indicted 11 men on charges of conspiracy to defraud the government of 30,000 acres of public land in the Umatilla Reservation. See **LANDS, PUBLIC.**

STATE OFFICERS: Governor, G. E. Chamberlain, Dem.; Secretary of State and Auditor, F. W. Benson, Rep.; State Treasurer, Geo. A. Steele, Rep.; Superintendent of Public Instruction, J. H. Ackerman, Rep.; Adjutant-General, Wm. E. Finzer, Dem.; Attorney-General, A. M. Crawford, Rep.

JUDICIARY. Supreme Court: Chief Justice, Robert S. Bean; Justices, Frank A. Moore and Robert Eakin; Clerk, J. C. Moreland—all Republicans.

The State legislature of 1909 is composed of 23 Republicans and 6 Democrats in the Senate, 51 Republicans and 7 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES**, in the section *Congress*.

ORGANIC CHEMISTRY. See **CHEMISTRY.**

ORNITHOLOGY. In Aug., 1908, three new bird reservations were established by executive order from President Roosevelt. These are the Key West Reservation, in the Gulf of Mexico; the Klamath Lake Reservation in Oregon and California; and the Lake Malheur Reservation in Oregon. Walter discussed the question of bird migration, in which he decides that birds find their way chiefly by means of landmarks, but reaches no definite conclusions as to why they migrate. In this connection, experiments by Watson are of interest. Noddies and sooty terns were taken from the Tortugas and released at varying distances from there along the Atlantic coast, some of them from as far north as Cape Hatteras, which is north of their usual area of migration. In all cases they returned to the starting point. This seems to indicate some "sense of direction." From South Carolina came the report that two colonies of the Snowy Heron (*Egretta candidissima*) had become established on the Atlantic coast of that State. Deane notes in the *Auk* that the only living passenger pigeons now known are three in the Cincinnati Zoological Garden, and four in confinement in Milwaukee, Wis. Cameron, observing the habits of the Golden Eagle in Montana, concludes that while it may in some localities kill large numbers of grouse, it is often of the greatest value to farmers because of the numbers of prairie dogs which it kills. He estimates that one pair of eagles will kill 636 dogs in four months. The Royal Society for the Protection of Birds, of London, has offered a prize of the society's gold medal for the best essay on "Comparative Legislation for the Protection of Birds." In the House of Lords, Lord Avebury has introduced a bill to prohibit the random slaughter of birds. This bill is framed along the same lines as the New York State legislation on this subject. In Scotland, two county councils have removed gulls from the list of protected birds. In *Sketches of South African Bird Life*, Haagner and Ivy noted some breeding habits of the cuckoos. The birds lay their eggs on the ground and carry them in their bills to the nests of other birds which they are too large to enter. The African cuckoos lay colored eggs, but when they lay in nests of birds whose eggs are white, the cuckoo often lays a white egg. The authors did not state if the same bird may lay two sorts of eggs, or if there are perhaps two strains. Godman began to publish a complete account of the *Turbinaries*, having recently been able to secure information hitherto not obtainable concerning their breeding habits in the comparatively inaccessible Antarctic regions.

OXYGEN INHALATIONS AND MUSCULAR EXERCISE. Leonard Hill, of the London Hospital, conducted some remarkable experiments during 1908, showing the beneficial effect of oxygen inhalation in athletics. Investigating the phenomena of difficult breathing, Hill found that a man could hold his breath three times the normal period by taking three inhalations of oxygen. Dr. Vernon, of Oxford, held his breath for 8½ minutes under these circumstances. These and other experiments led to the belief that the panting and distress of athletes might be relieved by the inhalation of oxygen before and after great muscular exertion. This proved to be the case. Runners were enabled to

excel their own records with less distress and ensuing muscular stiffness and instability. Further observations on himself, athletes, and horses, convinced Hill and his co-worker, Flack, that these inhalations, followed by or accompanying exercise, constitute a most efficient form of treatment in fat dyspnoic people, and those who overeat and take too little exercise; and in cases of emphysema and heart disease treated by graduated muscular work. The bodily metabolism is increased and fatigue immensely diminished. It is suggested that in tropical regions, where the fatigue following exercise is well known, oxygen inhalations may considerably abate mental and bodily fatigue and make exercise easier.

OXYRHYNCHUS, EXCAVATIONS AT. See ARCHAEOLOGY.

PAGE, CARROLL SMALLEY. United States Senator (Republican) from Vermont. He was born at Westfield, Vt., on Jan. 10, 1843. He received an academic education at Morrisville and Hyde Park. From 1869 to 1872 he served in the State House of Representatives and from 1874 to 1876 in the State Senate. He was State Finance Inspector from 1884 to 1888 and chairman of the Republican State Committee from 1886 to 1890, having been elected governor in the last named year. On Oct. 21, 1908, he was elected United States Senator by the legislature, succeeding John W. Stewart (q. v.), who had been appointed *ad interim* by the governor to fill out the unexpired term of Redfield Proctor. Senator Page received the degree of LL.D. from Norwich University in 1893.

PAINTING. The dearth of new men of promise in the American exhibitions of painting during 1908 continues to be, as it has been during the last ten years, a source of disquiet to American art lovers. Taking the two exhibitions of the New York Academy of Design as a measure of American art achievement during the year, for pretty much all pictures of value are shown there before beginning their wanderings to other cities which hold annual exhibitions, the output for the year was not impressive even as compared with that of 1907, which by common consent was not worthy of extravagant praise. This may be said notwithstanding that the Academy Exhibitions of 1908 showed an uncommonly large number of canvases by the so-called secessionist group of American painters whose representation on the Academy walls would, it was predicted, fill the rooms with much needed life. The Academy's hospitality resulted in a few good pictures, and in many that tried the patience.

At the spring exhibition the Saltus medal went to Edmund C. Tarbell for a sympathetic portrait of President Seelye of Smith College, perhaps the best portrait shown. Robert D. Gauley took the Thomas B. Clark prize for an idealistic portrait sketch entitled "Tanegra," a young woman holding a figurine. Of the Hallgarten prizes, the first went to Ernest Lawson for "Ice on the Hudson"; the second to George Bellows for a view of the North River; and the third to W. W. Gilchrist for his "Daughter and Doll." The Inness gold medal was awarded to W. Granville Smith, a young painter who until three years ago was chiefly known as an illustrator. His "Indian Summer," which was honored as the best landscape on exhibition, was even more notable for promise than achievement,

Among the portraits shown some of the best were, besides that of President Seelye already mentioned, John W. Alexander's "Study in Black and Green," which did justice to an attractive model; those by John S. Sargent of Dr. Edward Robinson of the Metropolitan Museum, and of Mr. Henry Cram, neither of them peculiarly characteristic of the force and technical excellence usually shown by this noted painter. J. J. Shannon's portrait of Mrs. Samuel Untermyer, John Sloan's portrait of a man, Wilhelm Funk's portrait of Mrs. Spotswood, Irving R. Wiles' portrait of Paul Cornoyer, and William M. Chase's portrait of W. J. Curtis, are some of the pictures that attracted attention. One of the popular pictures, and a good one despite its title, "A Cup of Tea, a Cigarette, and She," was Harry W. Watrous' saucy young woman smoking a cigarette. Also much praised was Sergeant Kendall's "Narcissa," a little nude girl admiring herself in the mirror, and Hugo Ballin's "Under the Pergola," an ambitious decorative composition. Still another little nude girl of some charm was H. S. Hubbell's "Lorette."

Among landscapes of note were Emil Carlsen's "Windham Hill," Leonard Ochtman's "Evening Light," Elmer Schofield's "Old Mills on the Somme," Walter Clark's "Sundown at the Ford," E. W. Redfield's "The Road," and Albert Groll's "New Mexico." Other pictures of the spring exhibition that call for mention were Mr. LaFarge's "Wolf Tamer," J. Alden Weir's "Ballet Girl," a figure entitled "West Wind," by Winslow Homer, Horatio Walker's "Woodcutters," D. W. Tyron's "Before Sunrise," and S. J. Woolf's "News-stand."

In the winter exhibition, which was opened in December with three hundred and thirty-eight pictures and a notable display of sculpture, Mr. Sargent's portrait of Mr. and Mrs. Pulitzer attracted much attention, much praise, and no little criticism. That of Mr. Pulitzer was conceded to be by far the best, the garish decorative scheme of the other portrait marring its technical brilliancy. A portrait of Miss Helen Brice was far below Mr. Sargent's standard. Good portraiture was contributed by George N. Reeves ("Miss Mary and her Aunt"), Howard G. Cushing (the young woman with red hair this artist paints so often and so well), Miss Emmett (Mr. H. C. Perkins), G. L. Nelson (Chester Beach), Norval H. Busey (H. W. Ranger), Louis Betts (Martin O'Brien), J. J. Shannon (Mrs. Ickelheimer, one of the best portraits shown), Hulda Parton ("A Brown Study"), Wilhelm Funk (his own portrait), and August Pollak's picture of his mother. Some of the disappointments in this field were Mr. Wiles' portrait of Mrs. James M. Beck, and Mr. Beckwith's portrait of Mrs. Inge. Neither of these artists did themselves justice.

Of figure pieces were F. B. Williams' "The Cascade"; Lillian M. Jenth's "Sun-Maiden," a fairly successful nude; Mr. H. R. Butler's "Summer Breeze," a graceful girl with wind-blown draperies; Sergeant Kendall's "Mischievous," a fascinating little nude; William Thorne's delightful girl with a crystal ball; and W. Granville Smith's admirable sun-lit picture of his little daughter, entitled "Queen's Lace." Good landscapes were by A. L. Groll ("Shower in Arizona"), Ben Foster ("Late Afternoon"), F. K. Rehn ("Sunlight and Shadow"), C. H.

Davis ("Cloudland"), Arthur Parton ("Moonrise"), Carlton Wiggins ("August afternoon").

The Carnegie prize went to Henry B. Fuller's colossal allegory, "The Triumph of Truth Over Error," an award bitterly criticised and later denounced upon the ground that the artist had received an undue amount of suggestion and help in a work sadly academic. Mr. Kendall's "Mischief" took the Isidor memorial medal, and the Proctor prize was awarded to C. N. Flagg for his portrait of Paul W. Bartlett.

Other pictures of interest were W. M. Chase's vigorous still-life of fish, E. W. Redfield's "In Port," F. A. Bridgman's "Return from the Masked Ball," Hugo Ballin's "Mother and Child," C. C. Cooper's "Rochester Bridge," C. W. Hawthorne's "Return" (a young fisherman painted with fine vigor), Horatio Walker's "Bootcutters," and J. G. Brown's inevitable "Bootblacks," the same youngsters that the veteran artist has been painting for the last forty years. Some of the other artists worthily represented were Frank DeHaven, Abbott Fair, Gifford Beal, Paul Cornoyer, C. M. Dewey, Francis C. Jones, George W. Maynard, Jerome Myers, William A. Coffin, Edward Potthast, Jonas Lie, Childe Hassam, and H. W. Ranger.

At the New York Water Color Society exhibition held in May the notable pictures were Gordon Grant's "Aquarium," a sketch of people peering into the fish tanks; George W. Edwards' "Fair Amalfi," a brilliant bit of color; Childe Hassam's "Green Jade Gown"; Florence B. Brown's studies of children; a sheep-shearing scene by Georgia T. Fry; some excellent figure studies by Alice Schille; Hilda Belcher's "Speculation," a delightful delineation of childhood; and W. J. Whittmore's "Romance." At the Water Club Show, opened in October, the Beal prize was won by Adelaide Deming for her "Moon Shadows," a picture full of poetry. Other good pictures were Edward Dufner's "Summer Evening," a tranquil landscape with women's figures nicely done; C. W. Eaton's "Venice"; C. C. Cooper's clever city sketches; Charles P. Gruppe's satisfactory Holland pictures that hold their own with the best of Dutch water color work; flower pieces of uncommon merit by Louis Rhead; a Venetian scene by Rhoda H. Nichols; Marianna Sloane's "Pollard Willows"; and sketches for stained glass by John La Farge. Pastels were admitted to the exhibition and made an interesting group.

Among the smaller exhibitions held in New York were those of paintings by Charles N. Dewey, Wilhelm Funk, Mrs. Ella Condie Lamb, Arthur W. Dow, and W. L. Lathrop. Eight artists—Messrs. Arthur B. Davies, W. J. Glackens, Robert Henri, Ernest Lawson, George Luks, Maurice B. Prendergast, Everett Shinn, and John Sloan—united in the exhibition of some fifty or sixty pictures, many of them well worth showing. Women artists to the number of nearly fifty in an exhibition of their own showed about eighty pictures. By common consent Miss Marion Powers' "En Famille," and Miss Ella Richards' "A Difficult Stitch," stood first and second in merit.

At the Carnegie Institute's twelfth annual exhibition in Pittsburgh, in April, the first prize of \$1,500 went to Thomas W. Dewing for a capital picture of a young girl toying with a necklace. Henri Leidsaner took the second prize or \$1,000 for a Venice nocturne of great charm.

To Emil Carlsen's "Surf" was awarded the third prize of \$500. Public opinion agreed with the judges. Among the American artists who contributed work of notable merit to the Pittsburgh exhibition were Charles W. Hawthorne, Cecilia Beaux, Robert Henri, Gari Melchers, Paul Cornoyer, D. W. Tryon, Walter Mac Ewen, Thomas Elkins, and Willard L. Metcalfe. Among the many foreign artists represented were Zorn, Lavery, Cottet, Raffaelli, Villegas, and Mesdag. One whole gallery was devoted to the work of Winslow Homer, lent by private collectors and public institutions. This in itself constituted an exhibition of importance.

The Corcoran Gallery exhibition (Washington) was of more than usual interest. The first prize fell to Edward W. Redfield for a virile snow-scene, and the second to Joseph De Camp for his graceful figure of a woman playing on the guitar. Robert Reid took the third prize for a picture of a woman before the fire. The fourth prize was awarded to Frederick Frieseke, an American living in Paris, for a well modeled nude. Robert Macameron, Henry Hubbell, John S. Sargent, Gari Melchers, H. W. Ranger, and Cecilia Beaux were some of the artists well represented.

The Pennsylvania Academy exhibition (Philadelphia), opened in June, was the most ambitious yet held by that institution, nearly a thousand paintings being shown. Portraits by John S. Sargent ("Lady with a Rose"), William M. Chase, E. C. Tarbell, and Frank W. Benson were much admired. In landscape work Ben Foster, Edward W. Redfield, W. Elmer Schofield, Albert Groll, C. C. Cooper, and Willard L. Metcalfe were prominent. Thomas G. Cushing and Thomas P. Anschutz had good figure pieces.

Boston's Copley Society held a fine exhibition late in April of work by Millet, Corot, Daubigny, Rousseau, Diaz, Troyon, and other French artists.

The salon of the Société des Artistes Français was opened in Paris in April with nearly twelve hundred pictures on the walls. The artists whose work attracted particular attention were Lhermitte, Zuloaga, Zacharian, Détaille, Lucien Simon, Laurens, La Touche, Roll, Picard, Lepère, and Cottet, Edouard Détaille, with a great allegorical picture, "Le Chant du Départ," and J. P. Laurens' "Beethoven," were the sensations of the salon. Leo Cauvy had an oriental scene of much strength. Of the hundred or so American exhibitors, Richard Miller, H. O. Tanner, Henry S. Hubbell, E. W. Redfield, C. W. Eaton, Frank Boggs, and Walter Mac Ewen were well represented.

The London Royal Academy exhibition offered but little of interest. Herkomer's huge and empty portrait group of the Council of the London Academy was typical of the whole exhibition.

PALMA, TOMAS ESTRADA. The first president of the Republic of Cuba, died at Santiago de Cuba, Nov. 4, 1908. He was born in Bayamo, on July 9, 1835, and was educated in Spain. Returning to Cuba, where he had inherited extensive estates, he soon became one of the leaders in the movement towards Cuban independence. On the outbreak of the Ten Years' War in 1868, he freed his slaves and joined the insurgent army, becoming a general and afterwards president of the provisional government. He was

finally captured and remained in prison in Spain until the collapse of the insurrection in 1878. An exile from Cuba, with his estates forfeited, he went to Honduras, where for a time he served as postmaster-general, and later to the United States, where he opened a school at Cherry Valley, N. Y. He organized with others the Cuban uprising of 1895 and was the head of the Junta in the United States, which raised funds and aroused public sympathy for the movement. He was elected the first president of the new republic in 1902 and re-elected in 1906. His first term was quiet, but after his reelection a revolutionary movement was inaugurated by the Liberal opposition, and Palma resigned after invoking the intervention of the United States. The purity of his patriotism was never questioned, but he lacked the strength of character to cope with the difficulties of his position.

PANAMA. A republic occupying the Isthmus of Panama. Its greatest length is 420 miles, its greatest width 118 miles, its narrowest part is 31 miles wide, and its area is estimated at from 31,570 to 33,776 square miles. The population numbers about 400,000, mostly a mixed race of Spanish, Indian, and negro origin. There are about 40,000 negroes and 2,000 Chinese. The principal towns and ports are: Panama, the capital, with 35,664 inhabitants (1908); Colon, or Aspinwall, 15,271 (1908); Bocas del Toro, 6000; Cristobal; and Ancon. Water and sanitary works have been established in Panama, Colon, and other parts by the American Canal Commission.

PRODUCTION. The mineral resources are but little known. Mother-of-pearl fishing is carried on in the Bay of Panama, and turtle shells are exported. The forests contain valuable hardwoods, dye woods, resinous woods, and medicinal plants. Brier wood, vegetable ivory, cocoanuts, milk of the medlar tree, and some rubber are exported. Bananas constitute the most important agricultural product and export article. Other products are cacao, coffee, sugar-cane, rice, corn, yams, and sweet potatoes. The province of Bocas del Toro has a large area of pasture land and a large number of cattle. A Spanish colony has been established in this province, and there are some American plantations. In 1905 there were in the republic some 65,000 cattle, 17,000 horses, 1,500 mules, 28,000 hogs, 200,000 sheep, and 3,000 goats. Chocolate, mineral waters, ice, and soap are made for local consumption. The manufacture and importation of tobacco, cigars, cigarettes, and salt is a government monopoly, but has been leased to private persons.

COMMERCE AND COMMUNICATIONS. In 1907 imports aggregated \$25,284,460, and exports, \$1,960,665, against \$17,951,428 and \$1,035,786, respectively, in 1906. The imports in 1907 included dutiable merchandise, \$9,564,450; canal supplies, free of duty, \$11,100,000; and imports on account of the commissaries, approximately \$5,000,000. Of the dutiable imports, \$5,196,964 was from the United States, \$2,028,112 from Great Britain, \$1,061,858 from Germany, and the remainder was credited chiefly to France, Spain, Italy, and Belgium. The leading imports included ammunition, automobiles, boots, and shoes, carts and carriages, cement, drugs and chemicals, clothing, furniture, machinery, rice, and soap. The exports were bananas, (representing 70 per cent. of the total), rubber, cocoanuts,

woods, drugs, hides, ivory nuts, tortoise shell, mother-of-pearl, sarsaparilla, coffee, cacao, horns, tuna gum, and deerskins. The principal port of export is Bocas del Toro, on the Atlantic, shipments from which in 1907 amounted to \$1,423,084. The imports of the United States from Panama during the fiscal year ending June 30, 1908, amounted to \$1,469,344, and the exports to Panama, \$18,232,666. The tonnage entered and cleared at the port of Ancon in the fiscal year 1907-8 was 352,390 and 352,484, respectively. The interoceanic railway, 47 miles long, connects the ports of Panama and Colon. It is owned by the United States under the name of the Panama Railroad Company, and is now completely double-tracked. A part of the line is being moved to the east, due to the overflow from the canal. The United Fruit Company, an American corporation, has constructed a railway from Almirante, a few miles by water from Bocas del Toro, to Changuinola, where the company owns plantations, a distance of some 13 miles. In 1907 the government granted a concession for the establishment of an automobile service in Panama, Colon, and other cities, for the transport of passengers and goods. A mortgage and security bank has been established for the purpose of lending money to farmers and landowners at low rates of interest. It also acts as a government bank.

GOVERNMENT AND FINANCE. The president is elected for four years and cannot serve two terms in succession. Dr. Manuel Amador Guerrero, the first president, was succeeded in 1908 by José Domingo de Obaldia. The Chamber of Deputies consists of 32 members elected for four years. The country is divided into seven provinces, each under a governor appointed by the president. The revenues in 1907 amounted to \$2,439,302, derived principally from customs and excise. The expenditures were estimated at \$2,433,866. On June 30, 1908, the credit balance of the government was \$8,110,697, of which \$6,300,000 was invested in first mortgages on real estate in New York City, \$1,505,307 was deposited on current account in New York, \$250,000 deposited in the above-mentioned government bank, and \$55,390 was in the government treasury. The monetary unit is the gold balboa, equivalent to the American gold dollar. The peso, or half-dollar, and its subdivisions, are silver coins. There is a police force of about 1,000 men.

HISTORY. In the spring of 1908 Colombian troops occupied the town of Jurado. The Panamanians were indignant over what they regarded as a violent seizure of Panama territory, twenty-five miles from the Colombian boundary. On the other hand, it was reported that President Reyes, of Colombia, asserted that he was acting in accord with Mr. Root, the Secretary of State of the United States, and according to Washington despatches the opinion in American official circles was that Jurado lay four miles within the Colombian boundary line. In May, Mr. Taft, the American Secretary of War, visited Panama and had conferences with the representatives of Panama and Colombia. He succeeded in obtaining a tentative agreement between them. Panama consented to await the decision of the American government before taking any action in this matter.

Another matter which called Mr. Taft to Panama was the impending election for presi-

gent of the little republic. There were two candidates for the presidency, Ricardo Arias, Minister of Foreign Affairs, and José Domingo de Obaldia, one of the vice-presidents. During President Amador's absence in Europe, Señor Obaldia was acting president. He removed certain officials who were accused of dishonest practices and compelled others to turn over to the government money which, it was alleged, they had intended to appropriate for themselves. President Amador rescinded these actions when he returned from Europe and removed the governors of the provinces of Colon, Chiriqui, and Coela—in order, it was said, to further the candidacy of Arias. Both Obaldia and Arias were Conservatives. The Liberals, who include the negro element, endorsed Obaldia. The opponents of Arias charged fraud in the registration. A revolutionary movement seemed imminent. The United States government sent warships to Panama and Colon, and landed a special force of marines. It called the attention of the Panama government to the fact that "if fraud was permitted in the elections it would be likely to lead to violence and riot and insurrection, and that it would then be the duty of the United States to preserve order under the treaty and the constitution of Panama." The government of Panama thereupon agreed to appoint a commission with full power to investigate the complaints of all parties, the United States to join in this inquiry through any agents it might choose to appoint, who would have full power to investigate and report to the United States government. The head of the American commission, Richard Reid Rogers, general counsel to the Isthmian Canal Commission, reported in June that the irregularities in the registration were much exaggerated in the complaints, that all errors had been rectified and every citizen given an opportunity to register, and that the representatives of political parties summoned by him to a conference duly approved the voting lists as compiled in his presence on May 29. On June 28, the municipal elections took place. In Panama and Colon, where the colored element took a prominent part in the elections, the opposition made gains. In Bocas del Toro and Chiriqui the administration party was successful, and it also carried two out of three of the other provinces. The results were thus of a mixed character, but on the whole they were regarded as favoring the candidacy of Señor Arias. The latter, however, soon resigned his position as foreign secretary and publicly withdrew from the contest for the presidency on July 4. This withdrawal, he declared, was dictated by a patriotic desire to prevent the military occupation of the republic by the United States and to enable the re-establishment of a union of political parties." In the election, held on July 12, the supporters of Arias refrained from voting and the ballots were almost unanimous for Obaldia. In Panama, Obaldia received 1,000 votes out of 3,500 electors originally registered by both parties; in Colon he received 400 votes out of 1,000 originally registered. On Aug. 1 the electors met in the capitals of the provinces and officially declared the election of Obaldia as president, and of J. A. Arango, Dr. C. A. Mendoza, and J. M. Lambert as vice-presidents. The new administration assumed office Oct. 1, 1908. The members of the cabinet of the new president were as follows: Secretary of Foreign

Relations, José Augustin Arango; Secretary of Government and Justice, Ramon M. Valdes; Secretary of the Treasury, Carlos A. Mendoza; Secretary of Public Instruction, Eusebis A. Morales; Secretary of Fomento, José E. Lefevre.

The Congress met on Sept. 1. On Sept. 23 it passed a habeas corpus act, which was promulgated by President Amador two days later. The Congress authorized the president to contract with two prominent persons to write a history of the country from its discovery to the establishment of independence. The work is to be completed within two to four years and is to be subject to revision by a committee appointed by the Secretary of Public Instruction. Provision was made for the preliminary expenses of the work.

PANAMA CANAL. On Jan. 6, 1908, President Roosevelt issued an executive order defining the powers of the Isthmian Canal Commission and its chairman. This order was merely a comprehensive revision of existing provisions found in the executive order of Nov. 17, 1906, and in subsequent orders and informal amendments. The general duty of the adoption of plans for the construction and maintainance of the canal under the supervision of the Secretary of War, and subject to the approval of the President, was placed upon the commission, whose powers were made broad and comprehensive. The chairman was made the executive head, and the other members of the commission were charged with the duty of advising and assisting in the execution of the work of canal construction, and other matters pertaining to sanitation, betterment, supply, and equipment. The members of the commission are required to reside upon the Isthmus, except when on leave of absence.

During the fiscal year 1908 the membership of the commission continued without change. On Sept. 15, Mr. Jackson Smith resigned from the commission, and Lieut.-Col. H. F. Hodges, Corps of Engineers, U. S. A., was appointed to succeed him. The commission at the end of the year was composed as follows: Lieut.-Col. Geo. W. Goethals, Corps of Engineers, U. S. A., chairman and chief engineer; Lieut.-Col. H. F. Hodges, Corps of Engineers, U. S. A., assistant chief engineer; Maj. D. D. Gaillard, Corps of Engineers, U. S. A., division engineer of Central Division; Maj. William L. Sibert, Corps of Engineers, U. S. A., division engineer of Atlantic Division; H. H. Rousseau, C. E., U. S. N., assistant to chairman; J. C. S. Blackburn, head of the Department of Civil Administration; Col. Wm. C. Gorgas, Medical Department, U. S. A., head of the Department of Sanitation; Joseph Bucklin Bishop, secretary; Edward J. Williams, disbursing officer; and Walter W. Warwick, examiner of accounts.

In carrying out the reorganizations indicated above, the Panama Canal Zone was divided into three parts, each of which was formed into a division in the Department of Construction and Engineering, and assigned to a division engineer who reported directly to the chief engineer. The first division, known as the Atlantic Division, included the territory north of Tabernilla; the second extended from that point to Padro Miguel, being known as the Central Division, and the third, Pacific Division, extended from Padro Miguel to deep water in the Pacific.

CANAL EXCAVATION TO DECEMBER 31, 1908.

	Cu. Yds.
By French Companies	81,548,000
By Americans—	
Steam shovels	37,111,790
Dredges	22,661,389
1904	243,372
1905	1,799,227
1906	4,948,497
1907	15,765,290
1908	37,016,693

Total 59,773,179

Excavation in Territory of Present Divisions May 4, 1904 to December 31, 1906.

Divisions	Amount Cu. Yds.	Excavated Total
Atlantic—		
Steam shovels	4,889,498	15,728,881
Dredges	10,839,383	
Central, all steam shovels—		
Culebra Cut	28,347,934	30,931,061
All other points	2,583,127	
Pacific—		
Steam shovels	1,291,231	13,113,237
Dredges	11,822,006	

Grand total 59,773,179

In 1904, when the Americans took the canal from the French company, there was required for the construction of the canal on the plan adopted and in force in 1908, a total excavation of 174,666,595 cubic yards. At the end of the year, a little more than one-third of this amount had been excavated. The lock canal, which was being constructed, according to the general plan of the minority members of the International Board of Consulting Engineers, involved, in their opinion, a total excavation of 103,795,000 cubic yards, but changes in details of the plan occasioned greater excavation than was provided for in this estimate. On the other hand, the amount of filling for locks and dams was estimated to be 29,387,000 cubic yards, or about 7,000,000 cubic yards less than was estimated by the minority members, and there will also be required 5,015,400 cubic yards of concrete, which is an excess of 2,000,000 cubic yards over the estimate of the minority members. Excluding the \$40,000,000 paid to the French company, and the \$10,000,000 paid to the Republic of Panama, the final cost of the canal at the end of the year was estimated at \$297,766,000.

On Oct. 1, 1908, the total cost of canal construction had amounted to \$83,275,000. The largest single item of these classified expenditures was in the Department of Construction and Engineering, which involved the sum of \$51,512,000, of which \$24,210,000 had been expended between July 1, 1907, and July 1, 1908. For dry excavation, \$43,285,000, of which \$12,236,000 was chargeable to plant, had been expended, and for wet excavation, \$6,061,000, of which \$3,500,000 was chargeable to plant. The civil administration of the canal construction from May 4, 1904, to Oct. 1, 1908, had cost \$2,381,000, while sanitation in the same period involved an outlay of \$7,408,000. The classified expenditures, included in the grand total mentioned above, do not include advances amounting to nearly five millions of dollars made to the Panama railroad; the purchase of Panama railroad stock; services rendered and material sold to individuals and companies amounting to about \$2,500,000; and all material and supplies on hand not drawn from store. In addition to

these costs, since the United States assumed the property of the French Panama Canal Company in May, 1904, there was involved the purchase price to that corporation of \$40,000,000, a grant to the Republic of Panama of \$10,000,000 in gold, and of \$250,000 annually, beginning nine years after the exchange of the ratification of the treaty.

During the year the widening of the Panama Canal through Culebra Cut, so as to make the minimum width 300 feet at the bottom instead of 200 feet, was authorized by President Roosevelt. This change makes the entire canal for the nine miles of the Culebra Cut from Bas Obispo to Pedro Miguel locks 300 feet in width at the bottom and involves an additional excavation of 12,997,000 cubic yards, and an extra expense of about \$14,000,000. The additional material thus excavated was to be removed about equally from each side of the former centre line, except between Las Cascadas and Empire, where the increased excavation would be on the west side in order to avoid interference with the Obispo diversion, and from Enterprise to Paraiso, where it will be taken from the east side, cutting out a small angle in the old line opposite Cucaracha. The average cross section of the canal will show a width of 300 feet at the bottom, with nearly perpendicular sides and an elevation of 95 feet above sea level, at which point a berm, 40 feet in width, will be excavated on each side of the canal, and the slope above will depend upon the material in which the excavation is made. The Atlantic and Pacific entrances to the canal are to be 500 feet in width at the bottom, and through Gatun Lake and the small lake at Miraflores, the width of the channel will vary from 500 to 1000 feet.

Some modification also was required in the construction of the locks of the canal as the result of a memorandum submitted to the Secretary of the Navy, by the General Board of the Navy, under date of Oct. 29, 1907, setting forth "that the width of the locks as now fixed, namely, 100 feet, is insufficient for probable ships of future construction and that sound policy would demand an increase to a clear width of 110 feet." This suggestion was adopted by the Commission, as there was no insuperable obstacle to such a modification of the project, and it was duly approved by the president on Jan. 15, 1908.

When the lock type of canal, first recommended by the minority members of the Board of Consulting Engineers, and adopted by Congress in 1906, was designed, provision was made for a flight of three locks at Gatun, two locks at La Boca, and one at Pedro Miguel. The locks at La Boca were placed on the west side of Sosa Hill in order to overcome the differences of level between the ocean and the lake formed by the Sosa-Coroza and the Sosa-San Juan dams. A beginning was made to construct the Sosa-Coroza dam by dumping material from Culebra Cut by a trestle. This was found impracticable, owing to failure of the trestles and the movement of the ground overlying the rock. Examination showed that this consisted of an unctuous blue clay without grit, with little supporting power, instead of a stiff clay, as originally believed. Beneath this the depth of rock varied from 10 to 70 feet, and the construction of the dam consequently on the



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TWO LEADING MEMBERS OF THE ISTHMIAN CANAL COMMISSION
COLONEL GEORGE W. GOETHALS
 Corp of Engineers, U. S. A., Chief Engineer



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TWO LEADING MEMBERS OF THE ISTHMIAN CANAL COMMISSION
COLONEL W. C. GORGAS, M.D., U. S. A.
 Chief Sanitary Officer

original lines, would have involved a greater length of time and expenditure than had been estimated. Accordingly it was determined to modify the original plan by building one lock at Pedro Miguel, two at Miraflores, and in addition there was the military consideration that locks further inland would be less liable to destruction by bombardment or from attack by an enemy. The Commission duly recommended the change, and this was approved by President Roosevelt on Dec. 19, 1907.

At the Gatun locks, where a twin flight of three locks communicate between the Caribbean portion of the canal at sea level and the Gatun Lake, at the end of the year 1908, 2,789,734 cubic yards, or more than one-half of the excavation, had been completed, and active work on the concrete plant and the power house was under way. In constructing these locks about 2,250,000 barrels of cement were estimated as required for concrete work, of which about 2,000,000 cubic yards were to be laid. The stone for the concrete was to be quarried and crushed at Portobello, a harbor of the Caribbean Sea, about 15 miles east of Colon, and towed in barges to Cristobal and by the old French canal to the new Gatun docks. Sand will be obtained in similar fashion from the village a few miles east of Portobello. Sand, rock, and cement will be handled by gravity and electric cars for delivery to and from the mixers, while a system of cableways stretching across the lock chambers will transport the concrete from the cars to the points desired. It was estimated that the entire plant would be ready for work by July 1, 1909.

One of the most important, if not the most important, engineering undertakings at the isthmus was the Gatun Dam, work on which was begun on Dec. 24, when a 20-inch suction dredge was set at work pumping sandy clay from a point 2,000 feet north of the dam site into the channel of the old French canal. The dam will be about $1\frac{1}{2}$ miles in length, with a space of 1,200 feet in width between the rock toes. The top of the dam, according to the adopted plan, was to be 135 feet above sea level, and the lowest level of water impounded in Gatun Lake was to be 85 feet. The plans selected for the Gatun dam involved an earth dam that was a combination of rock fill and hydraulic fill, where the exterior faces were to be composed largely of rock of all sizes brought from the canal excavation, dumped and laid on slopes much flatter than ordinarily would be found in earth dams. The interior of the dam was to be formed largely by clayey material obtained by hydraulic dredging from large deposits a short distance from the dam and carried by water through pipes to the places where it was to be used. This material, as delivered, would be a mixture of earth and water. The solid material thus brought to the dam site was to be slowly deposited and gradually form a solid water-tight embankment. As there would always be a certain amount of water in the nature of a pond on the top of the dam, there would be consequently a constant test of the embankment at all stages of its growth, so that any weak points might be detected and voids or cracks filled. The nature of the material was considered the only point of the dam subject to question. The clay soil, though generally impervious to water, it was

feared might slip and slide when subjected to heavy, unbalanced pressure, or on high, steep slopes slip when saturated with water. In other earth dams sandy and gravelly materials had been employed, and this radical difference of material made necessary the most serious investigation and consideration by the engineers. It was decided, however, that with a greater thickness at the bottom, amounting as it did in the Gatun dam to more than a third of a mile in horizontal thickness at its base, and including the rock-fill portion, stability and permanency would be assured.

By the end of the year, a toe of Bas Obispo rock had been built from a point near the lake site to the spillway on the south side, and a similar toe had been built on the north side at a distance of 1,200 feet. The dam was to be formed by pumping material into the space between these two toes. The total fill to be made was estimated at 21,000,000 cu. yards, and each of the two dredges which were to be put to work was considered able to deliver 150,000 cubic yards of material a month or over 5,000,000 cubic yards in a year. In making the dam, the surface soil was first to be removed, and in the channel of the old French Canal, which was being filled at the end of the year, the surface soil was being washed down until a suitable foundation for the hydraulic fill could be prepared. Sheet-piling sunk down into impermeable material clear across the valley along the axis of the dam was being employed, and a water-tight core was being constructed below the bottom of the hydraulic fill. An essential feature of the project was to divert the Chagres River through the spillway and this was to be done as soon as the concrete work in the spillway had been completed above the high water line.

The spillway extends through a small hill that rises in the middle of the dam site, and at the end of the year the excavation along the north section had been practically completed by active steam shovel work. The channel thus formed was to be lined with concrete, and heavier masonry was to be erected at the regulating works, and extend south, forming part of the spillway channel and the entrance to it. In constructing this spillway over 250,000 cubic yards of concrete will be required, and each wall will be 8 feet thick at the top of the floor, and on the back will rise in four steps to a thickness of three feet at the top. Great concrete monoliths 40 feet long by 20 feet wide will be laid, and the heaviest parts of the frames for the walls will weigh 4,800 pounds, being handled by a locomotive crane operating in the spillway on tracks parallel to the sides. Large concrete handling and mixing plants for the spillway and for the locks were being erected and at the spillway alone 500 cubic yards of concrete will be handled each day.

At the Gatun Dam, careful and extensive investigations in addition to those at the lock sites described below, were deemed necessary to ascertain the ability of the underlying material to support the proposed structure, and during the fiscal year tests were carried on. A test pit, 12 feet square, was sunk in the hill through which the spillway was being carried, and near its head, and this was carried down to about 35 feet below sea level. It revealed the fact that the rock formation was practically the same as at the lock site. In addition, a num-

ber of wash borings and a test pit of 20 feet square on Gatun Island was sunk to a depth of 68 feet below sea level. Examinations made of the spillway, in the opinion of the Commission, indicated that the rock has sufficient strength to bear safely any of the loads that would be placed upon it when suitable precautions were taken to cut off the flow of underground water. Two experimental dams on the scale of one inch to the foot were made, according to the designs adopted for the regular structure, and various tests of these showed not only the suitability of the material available in the neighborhood for the construction of the dam, but the fact that a stable and watertight dam could be built by hydraulic methods.

The Gatun Dam, both as regards its site and design, was criticised by the lay press and by a few engineers, especially those favoring a sea-level canal. It, however, was ably defended, among others, by John F. Stevens, former Chief Engineer of the Isthmian Canal Commission, who stated that the long down-stream toe of the dam, planned by the engineers, and its extreme height, were considered concessions to prejudice, and that under private enterprise, a far less massive structure would have been built and considered absolutely safe. Indeed, it was the consensus of the best engineering opinion that the plan and execution of the canal was being carried on systematically, efficiently, and economically. It was remarked, however, that necessary data, even for engineering critics, were not available except in the reports of the Commission, and that a careful study of these by technical men, and others interested, seemed to demonstrate the efficiency of the work. Some criticism was directed to the undue cost and the excess of expenditures, present and future, over original engineers' estimates, but it was stated in reply that no adequate knowledge of the underlying conditions had been possessed by the engineers who originally estimated on the work, and that its importance was developing with time, and justifying an outlay far greater even than was anticipated.

During 1907 and 1908, an interesting and careful examination of the foundations for the locks at the Gatun Lake was made, as some doubt and criticism had been made of the erection and as to the permanence of these massive structures. The material encountered consisted of a layer of argillaceous sandstone, overlying a layer of conglomerate which was composed of pebbles and other hard aggregates held together by a cementing material, and which was sufficiently hard in texture to require blasting for its removal. Then came a soft sandstone, consisting of sand with some cementing material which disintegrated under erosion. At the upper end volcanic tufa with scattering pieces of argillaceous sandstone was found, the proportion of tufa in this stratum diminishing toward the lower or north end of the site. Below this layer was dense argillaceous sandstone of considerable thickness. The presence of ground water was discovered by borings and as this was under pressure, it brought up interesting considerations. While the volume of water encountered was small, some provision was necessary to prevent its flow through the softer material, upon which the part of the wall would rest, and plans were devised whereby access to the foundation of this water would be prevented by curtained walls connected with the underlying impervious strata

of argillaceous sandstone. In the opinion of the Commission there was no question that the various materials would sustain the greatest loads that would be transmitted to them by the lock cells if provision were made to prevent the underground flow of water through the softer materials on which part of the walls would rest.

It will be remembered that the Gatun Lake, through a channel in which ships are to pass, is at a level of 85 feet above the sea, so that vessels must pass by a single flight of twin locks at Pedro Miguel and a double flight of twin locks at Miraflores to the level of the Pacific Ocean. The Pedro Miguel locks are $10\frac{1}{4}$ miles from the end of the canal, in the deep waters of Panama Bay, at a point where the Rio Grande River valley is about half a mile wide and enclosed on every side by hills. At the north end or beginning of the lock, the east wing wall will extend to the hill on the east, and a dam will be built from the west wall of the lock to the hill on the west side, for a distance of 1400 feet. This dam, at the end of the year, was under construction, and was being built of earth, with a clay core and rock toes. It was to be 40 feet wide at the top and have slopes of 4 to 1. The Pedro Miguel locks will consist of two parallel chambers of concrete, each 1000 feet in length, 110 feet wide, and with not less than $43\frac{1}{2}$ feet of water over the sills. The gates will be of the mitre type, operated by electricity from the hydraulic power plant at Miraflores. About 800,000 barrels of Portland cement will be used in the concrete work of the lock chamber and the approaches, and over 800,000 cubic yards of concrete will be laid. It was estimated that the excavation, well under way in 1908, would be completed by August, 1909, in order to enable the laying of concrete to commence on that date. From the south end of Pedro Miguel lock and the north end of the Miraflores lock is a distance of 1.6 miles, and the excavation for this part will require the removal of only 1,100,000 cubic yards of material to form a channel 45 feet deep and 500 feet in width, running through a lake formed by the water held back by the Miraflores dam. This lake will extend across the valley to a 55 foot level and will be $1\frac{1}{2}$ square miles in area. From the Pedro Miguel-Miraflores lake ships will be dropped from elevation 55 to sea level by two flights of locks at a point $8\frac{1}{2}$ miles from deep water in Panama Bay. The locks at Miraflores are designed of the same construction as those at Pedro Miguel, differing in a double step at Miraflores instead of a single step, as at Pedro Miguel. They also are located in the valley of the Rio Grande, but as their bottoms will be 20 and 52 feet respectively below sea level, a greater amount of excavation is required. Also the dams will be longer as the valley at this point is wider, and the east dam running from the upper end of the locks to Miraflores Hill will be 800 feet in length and will require 200,000 cubic yards of excavation and 63,500 yards of concrete. The spillway for the lock will be at this dam, and the water wasting into the Rio Grande valley will furnish power for the electric plant. An earthen dam, under construction across the Cocoli River, which crosses the lock site and runs into the Rio Grande, was making rapid progress at the end of the year.

The construction of the lock type of canal, involving as it does the overflow of the exist-

ing roadbed, caused the relocation of the Panama Railroad, and between Mindi and Corozal it was found necessary to carry the roadbed east of its present location at a level of about 10 feet above the normal surface of the lake. A beginning was made with the construction work along the new line.

BAS OBISPO EXPLOSION. On Dec. 12th the most serious accident that had occurred in the entire construction of the canal took place, when a premature explosion of dynamite in the cut at Bas Obispo resulted in the death of 23 employees of the Commission and the more or less serious injury of about 40 employees, mainly Spanish and negro laborers. The cause of the accident was not definitely determined, but it was believed to be accidental and not due to negligence on the part of those engaged in the blasting, as elaborate rules for the storage, transportation, handling and use of explosives had been promulgated by the Commission and were efficiently observed. When it is realized that practically a million pounds of dynamite a month is delivered for blasting work in connection with the canal operations, its extent readily can be appreciated. The explosion threw down a mass of rock estimated at 55,000-60,000 cubic yards to lower levels, filling the last three cuts which had been made by the steam shovels. During the year 1908 there were six accidental explosions of dynamite on the canal work where one or more fatalities occurred, and in this time one million charges were exploded, one-third of which were in holes.

GOVERNMENT OF THE CANAL ZONE. In the government of the Canal Zone there were no striking events of importance during the year. Satisfactory relations with the Republic of Panama, and foreign representatives, were maintained, and the results of congressional legislation affecting the Canal Zone were most beneficial. By action of Congress, the Employers' Liability Act, an act providing for the compensation of government employees injured in the performance of duty, was extended to the Zone. By executive order, the Chinese Exclusion Law of the government of Panama came into effect in the Canal Zone, and trial by jury was provided for criminal prosecutions, where the penalty by death or life imprisonment might be inflicted. At the ports of Ancon and Cristobal, 412 vessels, aggregating 817,863 tons, entered. No duties or customs fees were collected. On June 30, 1908, there were 1081 leases in force, covering building lands, buildings, and agricultural lands, from which the revenue derived was \$17,436.76, and on account of distillation, liquor licenses and fees from bonding companies qualified to do business in the Canal Zone, \$44,743.96 were collected. The general tax and license receipts was \$77,467.47. At the close of the year the police force consisted of 232 men; there were 6075 arrests and 4731 convictions, 98 of which were felonies. Schools were maintained for white children at 11 places, in which 721 pupils were enrolled, and for colored children at 15 places, with an enrollment of 2146. At the beginning of the fiscal year there was \$144,358.09 in the Zone treasury, and \$283,906.17 were collected during the year, and \$183,501.95 expended, so that the balance on hand at the close of the year was \$244,762.31. Of the money expended \$47,175.03 were for public works and improvements; \$35,-

749.47 for the maintenance of public schools; \$99,673.21 for the postal service, and \$904.24 for contingent and miscellaneous expenses. The good record maintained by the Sanitary Department continued during the year. With an average of 43,057 men on the pay roll, the death rate per thousand was 18.32 or less than that of the previous year. With the white force the death rate was 15.34, and for the blacks, who averaged 30,999, the death rate was 19.48, or a decrease of over half that of the previous year. This was due, not only to better sanitation, but largely to better food.

PAN ANGLICAN CONFERENCE. See ENGLAND, CHURCH OF.

PAPER. The paper industry in 1908 was occupying a very large place in public interest on account of its connection with a number of important matters. For the manufacture of paper large quantities of wood pulp are required annually, so that there is involved a steady drain on the forests with the result that not only was their possible exhaustion feared, but the effect on climate, water supply and the general welfare of the people in a not distant future was pointed out by those interested in the policy of conservation. Then the demand of the daily press for large quantities of paper had made it possible for manufacturers to put prices at what was considered by consumers an unduly high figure so that publishers were at the mercy of manufacturers or combinations of manufacturers. In fact this was so important that a committee of the House of Representatives, known as the Mann Committee, from its chairman, spent a large part of the year investigating the paper industry, taking much testimony and examining plants both in the United States and Canada. No report had been issued up to the close of the year. Likewise paper figured in the hearings of the Ways and Means Committee on the proposed revision of the tariff, but here also no indication of policy was made, though naturally the trade was greatly interested and concerned. But the main point was that all of these matters must be considered in the light of many interests and policies as the questions were indeed fundamental. The paper industry figured in one of the prosecutions under the much-discussed Sherman Anti-Trust Law, and the Fibre and Manilla Association, commonly called the Parks Pool, from its organizer, was duly investigated. After an indictment had been found by the Federal grand jury against the corporations and firms composing the pool for forming a combination in restraint of trade, the various members, with the exception of Mr. Parks, who was in Europe, pleaded guilty, and were fined \$2000 each. During the year there was a serious strike in the paper industry, which was extended sympathetically until it embraced a number of corporations. It began with the employees of the International Paper Co., but soon spread to the Great Northern Paper Co., the St. Croix Paper Co., the Cliff Paper Co., the Pettebone-Cataract Paper Co., and other works. The strike lasted from the beginning of August until almost the middle of November, and resulted in a defeat for the workers, who returned to work as individuals without the recognition of the unions. Trade conditions during the year were influenced by a number of external causes. Thus the general

shortage of water had a serious effect and prevented many of the mills running to their fullest capacity when business had begun to pick up. In fact a lack of water was felt throughout the year and resulted in a decreased output of pulp. While business was slack in the early part of the year, yet it improved, and with the decreased output caused by a strike, stocks of paper were gradually wiped out, and even Scandinavian pulp was imported. At the end of the year the situation was reported as regards pulp not as a question of price, but of getting pulp.

In connection with the conservation of the nation's forests it is worthy of mention that the International Paper Company, which owns about 900,000 acres of timber lands, decided near the end of the year to limit the amount of the cutting to the annual growth, and the department of forestry, which was in charge of Charles F. Griffing, was directed to put into effect a practical plan of forestry which would have as its object the conserving of the wood by using the most economical methods of cutting and to carry on all operations so as to minimize the danger of fire.

During the year there appeared an interesting review of the paper industry of the world prepared by Franz Krawany, director of the Paper Union of Vienna. In the statistical summary it was stated that the total annual production of the world amounted to 8,000,000 tons, of which 55 per cent. was produced in Europe, divided by percentages as follows: Germany, 17 per cent.; England, 11 per cent.; France, 7 per cent.; Austria-Hungary, 5 per cent.; Russia and Finland, 3½ per cent.; Sweden, 3 per cent.; and Norway, 1½ per cent. The remaining 43 per cent. was credited to America, and the United States was responsible for nearly 40 per cent., and Canada for almost 3 per cent. As regards consumption, the annual average for Europe per capita is 10 kilograms (1 kilogram = 2.2 pounds.) England has a per capita consumption of 25 kilos, Sweden 24 kilos, Germany 19¾ kilos, Norway 16 kilos, Switzerland 15 kilos, Austria and Belgium 11 kilos, France 14 kilos, and so on to the less civilized countries. Canada stands at the head of the list of consumers with 28¼ kilos, while the United States is fourth with 22½ kilos. The total number of paper machines in the world, including board machines, was estimated at 9109, distributed as below. The average production per machine depends, of course, upon the class of paper, the width of machine, and the speed at which it is operated. It is shown in the accompanying table.

Country	Number of Machines	Average Production per Machine
United States.....	1051	Tons 2830
Canada	394	2670
Norway	79	2230
Finland	Number not given	1760
Sweden	227	1680
England	558	1610
Germany	916	1390
Austria-Hungary ...	282	1380
Belgium	Number not given	1250
Russia	separately	1070
France	539	1050
Italy	566	460

In this discussion the statement was made that if the population of the world and the consumption of paper should increase in the ten years after 1908 at the same rate, at the end of that time there would be required 1000 additional machines and that the world's production will have been increased by 25 per cent. Now, the interesting question was, will this calculated increase be restricted by a deficiency of the raw material, especially wood pulp? The world's annual production of mechanical wood pulp is roughly 3,500,000 tons; that of chemical wood pulp and straw pulp, 3,250,000. Therefore, it is easy to understand the efforts and experiments that were being carried on to find new fibres for use in making paper. In its annual review of the world's paper industry for 1908 *The World's Paper Trade Review*, in a critical discussion of the progress made during the year with new fibres, after discussing them individually, concludes: "Notwithstanding the advancing price of wood, and the depletion of the world's forests, wood pulp on account of its comparatively low cost makes a suitable substitute difficult to find, especially when such necessary items as planting, cutting, drying, packing, shipping and freight are taken into consideration." Even more interesting is a report issued during 1908 from the U. S. Department of Agriculture on "Paper Making Materials and Their Conservation," Circular 41, Bureau of Chemistry, prepared by F. P. Veitch, chief of the leather and paper laboratory. According to this report the growing demand for paper making materials may be supplied by a more conservative use of those which have been shown to be well suited for the purpose which thus used are ample in supply to meet normal requirements for many years. Especially larger quantities of waste textiles and papers should be used for paper making, as some 2,000,000 tons of such wastes, worth approximately \$30,000,000, could be saved in the United States annually. This material would make 1,700,000 tons of paper, and the amount of wood required annually for paper making could be reduced to about 2,000,000 cords. In regard to the large quantities of cultivated and wild straws and grasses and flax fibre available for use in paper making, the report states that economic agricultural considerations indicate that the cultivated straws should only be thus used when the woods and textile and paper wastes can no longer supply the demand or are too costly. Flax fibre when it can not be put to more important uses is available for paper making and should be used. "Finally, when all of these supplies are no longer adequate and when economic conditions are such as to justify such innovation, there are suitable quick-growing materials which may be produced primarily for paper making." In another government research the availability of corn stalks for paper making was shown and this will be found discussed under CHEMISTRY, INDUSTRIAL.

PAPUA, TERRITORY OF. Formerly known as British New Guinea, a colonial possession of the Commonwealth of Australia. Including the southern and southeastern portion of the island of New Guinea, the D'Entrecasteaux and Louisiade groups, and other islands, the total area is about 90,000 square miles, and the total population about 350,000 (600 Europeans). Port

Moresby, the capital, has 1600 inhabitants (100 Europeans). The existence of a vast mountain range, extending through British, German, and Dutch New Guinea and containing some of the highest peaks outside of the Himalayas and the Andes, has been recently established. Gold is produced. The Astrolabe copper field covers an area of 1000 square miles. The forests contain ebony, sandalwood, cocoanut and sago palms, and yield rattans, rubber and gums. Tobacco and coffee are produced. Towards the end of 1908, J. H. P. Murray, chief judicial officer of Papua, was appointed Lieutenant-Governor, and Stamford Smith, Administrator.

PAPYRUS, DISCOVERIES OF. See **ARCHÆOLOGY.**

PARAGUAY. A republic of South America. Area, 97,722 square miles; population (1905), 631,347, a mixed race of Spanish, Indian, and negro origin, including 50,000 Indians. The number of immigrants in 1906-7 was 1226. The principal cities, with their estimated populations are: Asuncion, the capital, 60,259 (1905); Villa Rica, 25,000; Concepcion, 15,000; Carapegua, 13,000; Paraguari, 10,000; Villa del Pillar, 10,000.

EDUCATION. The primary schools are under the direction of the national board of education. In 1907, there were 383 primary schools, with 698 teachers, and 39,749 pupils—an increase of 10,000 over the previous year. The government maintains five colleges, corresponding to American high schools, at Asuncion, Villa Rica, Concepcion, Villa del Pillar and Encarnacion. In 1907, they had 62 teachers and 615 students. The normal training school for teachers had 58 teachers and 119 students. The national university, founded in 1899 at Asuncion, has faculties of law and social science, medicine and pharmacy; in 1907 there were 52 professors and 194 students. The national college of agriculture, with an experimental farm attached, is situated a short distance from Asuncion. About twenty students are maintained by the government in Europe and the United States. At Asuncion there are four large private schools, two of them under ecclesiastical direction.

PRODUCTION, COMMERCE, ETC. The greater part of the soil has been alienated by the government to capitalists, syndicates, and foreign bondholders, and is mostly uncultivated. Quebracho logs and extract are the most important forest products. About 4200 pounds of rubber were exported in 1907. Excellent cotton is grown. The most important products are *yerba maté* (Paraguay tea), the cultivation of which is carried on by capitalists and companies, oranges and tobacco. Other products are maize, alfalfa, beans, manioc, mandarins, etc. Cattle rearing is the most important industry, and jerked beef and hides are exported. In 1907, the imports amounted to \$7,861,273, and exports, \$3,236,109. Both branches of the foreign commerce show a gain over the preceding year, the gain in imports being over \$1,500,000, and in exports over \$500,000. About half the value of the imports is from Great Britain, consisting chiefly of cotton goods, groceries, provisions, spirits, drugs and hardware. Germany ranks second on the import list, furnishing rice, groceries, hardware, machetes, guns and ammunition, stationery, etc. France supplies wines and from Italy are very much of the same nature—spirits, sugar, perfumery, etc. The imports

as from France. From the United States a small amount of agricultural machinery, machetes, axes, kerosene oil and leather is imported. The principal countries of export are Argentina, \$1,850,610; Germany, \$566,700; Belgium, \$268,650; and Uruguay, \$475,624. In 1908, both imports and exports fell off, and while there were but few business failures, most of the large concerns were obliged to ask for extensions of credit. Money was scarce and exchange was quoted in September, 1908, at 1400 per cent. There are about 674 commercial houses in Asuncion, nearly all in the hands of Germans, French, Italians and Spaniards. Of British houses there are only two. In the country districts, there are 1728 firms of various nationalities. The government promotes native industries and immigration. An Italian colony has been established near Asuncion, and the introduction of Asiatic coolie labor on the rice, sugar and tobacco fields was being considered. The length of railway in 1908 was 154 miles; of telegraph lines in 1907, 1966 miles.

FINANCES, ETC. The budget of 1908 estimated the revenue at 2,567,000 gold pesos and 6,080,000 paper pesos, and the expenditure at 389,037 gold and 30,008,806 paper pesos (1 gold peso = \$1,034). The public debt consists of the British debt, which stood on Dec. 31, 1907, at 4,139,449 gold pesos; the Argentine debt, 12,435,500 dollars in 1904; the Brazilian debt, 9,876,500 dollars in 1904; and paper money, 35,000,000 pesos in 1908.

ARMY. The army, which is a sort of internal police force, is recruited by voluntary enlistment and consists of 1161 officers and men of infantry, cavalry, and artillery. General Benigno Ferreira assumed office in December, 1906. In July, 1908, he was displaced by Dr. Emiliano G. Naveiro.

HISTORY. In his message to the National Congress of April, 1908, President Benigno Ferreira stated that the foreign relations of the country were satisfactory. The government participated in a number of international conferences. Extradition treaties were negotiated with several European governments. The arbitration treaty with Peru was submitted for the approval of the Congress. With Brazil and Spain arbitration treaties were under consideration. The boundary question with Bolivia was on the point of adjustment through the good offices of the Argentine government. Internal conditions were also a cause for congratulation. Both customs and internal revenue receipts showed an increase over the preceding year. Agricultural prospects were good, and although there was a decline in the price of hides and the lumber industry underwent a temporary cessation, yet financial interests did not suffer.

On July 2 a revolution broke out in Asuncion. For two consecutive days the revolutionists bombarded the government troops in the buildings in which they had taken up positions. The number of killed in the streets of Asuncion was estimated at 400 or 500, the wounded numbering as many. On July 4, the revolutionists were triumphant, and President Ferreira resigned. He was succeeded by Vice-President Dr. Emiliano G. Naveiro. The former President and his ministers took refuge in the foreign legations. The diplomatic corps appealed to the revolutionists to spare the lives of these officials, and their appeal was granted. By the middle of July the

new government was generally recognized.

It was reported that the Argentine government had aided the government forces against the revolutionists, while the Brazilian government sympathized with the latter. During the fighting Argentine gunboats sailed up the river to the capital, ostensibly to protect the foreign legations.

PARSONS, FRANK. An American educator and author, died on September 26, 1908. He was born at Mount Holly, N. J., on November 14, 1854, graduated in mathematics and engineering at Cornell in 1873, and after being employed as an engineer, studied law, and was admitted to the bar in Boston and practised law there. In 1892 he was appointed lecturer on law at Boston University, and he was professor of history and political science at Kansas Agricultural College in 1897-1900. He had also served as professor of political science and dean of the College of Liberal Arts in Ruskin University, Missouri, and as director of the Bureau of Economic Research, Washington. Professor Parsons made a special study of railroad ownership and operation, both in Europe and this country, and in 1901-02 was called as a witness before the United States Industrial Commission on the public ownership of railroads, telegraphs, and telephones. His publications include *Our Country's Need* (1894); *The Drift of Our Time* (1898); *The City for the People* (1900); *Direct Legislation* (1900); *The Bondage of the Cities* (1900); *The Story of New Zealand* (1904); *The Heart of the Railroad Problem* (1906); *The Railways, the Trusts, and the People* (1906), and *History of Railway Discrimination in the United States* (1906).

PASTOR, ANTONIO. An American theatrical manager, died on August 26, 1908. He was born in New York City, about May, 1835, and made his first public appearance at the age of 6, singing at a temperance revival meeting. In 1843 he was featured as a "child prodigy" at P. T. Barnum's Museum. After several years spent with various travelling circuses and minstrel shows, he appeared as a singer at the Bowery Music Hall, New York, in 1859. He was manager of a concert hall in the same city, from 1861 to 1865. He opened a variety theatre on the Bowery in 1865, and managed it successfully until 1875, when he established one on Broadway. In 1881 he opened Tony Pastor's Theatre, in Tammany Hall, East Fourteenth Street. He managed this continuously up to the time of his death. Pastor was the originator of modern vaudeville. Many of this country's most successful comedians and variety actors made their first appearance under his management.

PATENTS. See UNITED STATES, paragraph *Patents*, and under GREAT BRITAIN, *New Patent Law*.

PATRIOTIC SOCIETIES. Those organizations have as their object the preservation of the records of important events in history, and especially of the wars in which the United States has participated, the encouragement of love of country, the saving and restoration of historical sites and objects, the celebration of anniversaries of historic events, and the fostering of fraternal feeling and intercourse among veterans.

Of these societies the most important are the following: The Society of the Cincinnati, founded in 1783, membership in 1908, 842, Presi-

dent-General, Hon. Winslow Warren; Sons of the Revolution, founded in 1776, membership in 1908, 7560, General-President, John Leo Carroll; Sons of the American Revolution, founded in 1889, membership in 1908 about 11,000, President-General, Henry Stockbridge; Grand Army of the Republic, founded in 1866, membership in 1908, 225,157, Commander-in-chief, Henry M. Nevins; Sons of Veterans, founded in 1879, membership in 1908 about 50,000, Commander-in-Chief, Edgar Allen, Jr.; United Veteran Legion, founded in 1884, membership in 1908, about 20,000; General Society of Mayflower Descendants, founded in 1894, Governor-General, Samuel B. Capen; Huguenot Society of America, founded in 1883, President, Col. William Jay; Society of Colonial Wars founded in 1892, Governor-General, Arthur J. C. Sowdon; Order of Founders and Patriots of America, founded in 1896, Governor-General, Col. R. S. Woodruff.

The most important women's patriotic societies are: Colonial Dames of America, founded in 1890, President, Mrs. Edward King; Daughters of the American Revolution, founded in 1890, membership, 55,780 in 1908, President-General, Mrs. Donald McLean; Daughters of the Revolution, founded in 1891, President-General, Mrs. Frank E. Fitz; Dames of the Revolution, founded in 1896, President, Mrs. Montgomery Schuyler.

There are several patriotic societies of Spanish War veterans and of veterans of the Confederate army and their descendants.

The forty-second annual encampment of the Grand Army of the Republic was held at Toledo, Ohio. The following officers were elected: Henry M. Nevius of Red Bank, Commander-in-Chief; J. Kent Hamilton, Senior Vice-Commander-in-Chief; Charles C. Royce, Chico, California, Junior Vice-Commander-in-Chief; Frank O. Cole, Adjutant-General; B. R. Stowits, Buffalo, N. Y., Quartermaster-General. The headquarters of the Grand Army are established at Red Bank, N. J.

The Sons of the Revolution have established headquarters for the New York State Society at Fraunces Tavern in New York City, which is under their supervision, and under their direction has been reconstructed and made a patriotic memorial. The Tavern was visited by many people during the year. The Long Room and Museum are objects of special interest, and arrangements have been made so that these rooms are practically open to the public at all times during the year.

The Daughters of the American Revolution are constructing a Memorial Continental Hall in Washington, which was nearing completion at the end of 1908. This Hall is to cost \$500,000, and is intended to be a memorial to Revolutionary heroes and heroines, and a place for meeting for the transaction of business in the present day. The Society during the year dedicated an arch to the memory of Revolutionary soldiers and pioneers at Johnstown, N. Y. Fort Masack in Illinois is to be preserved by the Society as a park, and a fine monument has been erected to George Rogers Clark by the Daughters of the American Revolution of Illinois. A suitable memorial was placed at Allentown, Pa., in memory of Jacob Mickley and others. The Society of Colonial Wars dedicated a monument to the memory of Lord Calvert in Baltimore during the year.

PAULSEN, FRIEDRICH. A German philosopher of the Neo-Kantian school, died on Aug. 14, 1908. He was born in Langenhorn, on July 16, 1846, and was educated at Erlangen and at Berlin, where he was appointed docent in 1875, and in 1896, professor of philosophy and pedagogy, a chair he held at the time of his death. Dr. Paulsen was one of the most popular lecturers in Germany. He published an important genetic study of the Kantian system, *Versuch einer Entwicklungsgeschichte der Kantischen Erkenntnisstheorie* (1875), with a supplemental work, *Immanuel Kant* (1898: English translation by J. E. Creighton and A. Lefevre, 1902); also: *Kant der Philosoph des Protestantismus* (1899); *Schopenhauer, Hamlet und Mehistopheles* (1900); and *Ethik* (1889, partial English version, 1899) which has a valuable historical sketch, and treats from a practical viewpoint the morality of every day life and politics. On educational topics he wrote *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten* (1885), and *Höhere Schulen und Universitätsstudium im 20. Jahrhundert* (1901).

PAVEMENTS AND ROADS. The general status of pavements continued in 1908 largely as in the years preceding. Sheet asphalt, wood blocks treated with a preservative and brick were the leading paving materials where smoothness, cleanliness and a minimum of noise are sought. The best stone blocks are more durable than the three materials named, particularly where the traffic is heavy, but stone pavements are rougher, noisier and less easily cleaned than asphalt, wood or brick and are also expensive in first cost. Concrete blocks were used in a number of cities in 1908, with considerable promise of success. They can be readily made in any desired size and can be given a smoother surface than is possible with split stone blocks. Bituminous macadam continued to gain in favor and use for city streets of moderate traffic, and with the dust and destruction which the automobile was causing on country roads, bituminous macadam was finding a place there as well. Ordinary macadam, while not always classed as a pavement, made up a large percentage of the surface of improved streets in many large cities and was the principal material used in the smaller cities and towns in America, and also in many European countries. The relative areas of stone, wood, asphalt and macadam pavements in Paris and New York City on Jan. 1, 1908, as given in a paper by Mr. Lewis, mentioned below, was as follows:

	Paris	New York
Stone	6,726,000 sq. yds.	8,380,000 sq. yds.
Wood	2,464,900	287,800
Asphalt	495,200	13,901,530
Macadam	1,399,500	9,684,500
Totals	11,085,700 sq. yds.	32,254,600 sq. yds.

Asphalt was introduced into Paris as long ago as 1855, and wood did not get a good footing until 1881 (owing to the failure of earlier wood pavement, due to improper material or construction), yet, wood is far more extensively used in Paris than is asphalt. The asphalt there, however, is made from a natural con-

dition of asphalt and limestone. Such pavement is known as rock asphalt, and is harder and slipperier than the asphalt pavements of American cities, to form which a relatively pure asphalt is mixed, hot, with powdered limestone and other materials, in proportions shown by long general experience and also by local tests to give the best results. The wood blocks used in Paris are of soft pine, treated with creosote in a large plant owned by the city.

ROADS. State aid in highway construction and maintenance is gradually spreading through the United States. The aid includes actual construction and repair by the several States, the counties and towns concerned paying a portion of the cost; and advice and other assistance by State officials is also rendered. In New York State the expenditure of \$50,000,000 is being distributed over a period of ten years, State bonds being issued from year to year. The sum named will be largely increased by the amounts contributed locally. Highway construction and maintenance procedure in New York State was revolutionized in many particulars, extended in others and systematized throughout by the Legislature of 1908 (Laws, 1908, Chap. 330). Enactments of the past 110 years were consolidated and revised. The time-honored and much-abused labor system (taxpayers "working out" their highways taxes under the direction of "district" superintendents) was abolished, as of Jan. 1, 1909, and the money system set up in its place. Hereafter town superintendents will be responsible for all local roads. Certain country roads, improved at the joint expense of the town (15 per cent.), the county (35 per cent.), and the State (50 per cent.), and all State roads (whole cost of improvement met by the State) will be in charge of a State Highway Commission of three members, one of whom must be a civil engineer. County superintendents to have general charge of all bridges and highways, are to be appointed by county boards of supervisors, or, on failure so to do, the State Highway Commission must appoint district superintendents instead, forming one or more counties into a district with a maximum of 5000 miles of roads. The State bond issue already mentioned was to be divided hereafter between State and county roads, not over half of the appropriation of any one year to go for State roads. The statute named specified 37 routes for roads to be built wholly at State expense and to form a network of main or through highways over the whole State. The county roads improved under this act were to be so chosen as "to constitute a properly developed system of improved market roads within the county." The initiative for such road improvements lies with the county authorities. County supervisors may construct or improve highways located in one or more towns and divide the expense between the towns, or the towns and the county, as the supervisors see fit. Once improved, the maintenance and repair of both State and county roads is to be under the control of the State Highway Commission. Towns must contribute \$50 per year per mile of improved State and county roads within their limits towards the repair of such roads.

The subject of road construction and maintenance, with particular regard to securing roads that will resist the wear and tear of automobiles and that will not give rise to intoler-

able dust, occupied a large part of the time of the (first) International Roads Conference, held at Paris, France, in Oct., 1908. A summary report on this conference, including observations made in various foreign cities, has been published by Mr. Nelson P. Lewis, Chief Engineer by the Board of Estimate and Apportionment, New York City. Some form of bituminous macadam construction, Mr. Lewis concluded to be the consensus of opinion, should be employed for roads, thus giving cohesion and resistance to the road bed and preventing the formation of dust. Sprinkling with oil or tar is too expensive and temporary to give satisfaction. See INTERNATIONAL HIGHWAY CONGRESS.

PEABODY MUSEUM OF HARVARD UNIVERSITY. Peabody Museum of American Archaeology and Ethnology was founded in 1866, when George Peabody gave \$150,000 for that purpose and for a professorship in Harvard University, which has become the anthropological section of the University Museum. The South American Expedition is the most extensive expedition undertaken by the Museum. From its headquarters at Arequipa, Peru, expeditions are made with the object of gathering ethnological and other scientific collections. Explorations have been in progress under the direction of the Committee of Central American Research at the ruined cities of Central America. In 1908 an expedition explored the prehistoric cemetery near Madisonville, Ohio. The researches in relation to the antiquity of man in the Delaware River were continued during the year. A quarto memoir, vol. 4 (No. 2) with many plates covering explorations in Central America, has been published. The curator of the Museum and Peabody professor is Frederic W. Putnam. The secretary is Frances H. Mead.

PELLAGRA. This disease, caused by eating fermenting or decomposing corn, became a vital question in the South during 1908. North Carolina, South Carolina, Georgia, and Alabama were the States principally concerned. Prior to 1907 pellagra was not thought to exist in the United States. A fatal epidemic occurred in that year at the asylum for the colored insane at Mt. Vernon, Ala., and served to arouse the attention of physicians in this section of the country. The disease occurs both in an acute and chronic form, and is very fatal. The essential element in the production of pellagra is believed to be the result of the growth of certain fungi, constituting the "smut" of corn. This does not develop in maize allowed to ripen on the cob before being gathered, but in that which is plucked before maturity, and allowed to ferment or decompose. In European countries and in Egypt, the disease has long been prevalent. Rumania was said to have 50,000 cases of the disorder, and Italy 100,000, but the disease is not in these countries of such a virulent type as that reported in the United States.

PENANG. See STRAITS SETTLEMENTS.

PENNSYLVANIA. One of the Middle Atlantic States of the United States. Its area is 45,126 square miles. Its population in 1908, according to Federal estimate, was 7,137,315.

MINERAL RESOURCES. The value of the mineral products of Pennsylvania far surpasses that of any other State. According to the figures given by the United States Geological Sur-

vey the value of these products in 1907 was \$657,783,345, as compared with \$657,413,780 in 1906. This is more than three times the value of the product of any other State. Pennsylvania produces practically 50 per cent. of the coal mined in the United States. In both anthracite and bituminous production, Pennsylvania in 1907 exceeded any previous record in the history of the State. The total production was 235,747,439 short tons, with a spot value of \$319,248,082. Of this, anthracite composed 76,432,421 long tons and bituminous 150,143,177 short tons. In 1906 the output of anthracite was 63,645,010 tons, and of bituminous, 129,293,206 tons. The marked increase in both anthracite and bituminous coal in 1907 was due to the fact that the production of both was somewhat restricted in 1906 by the suspension of mining operations on April 1 of that year, pending the adjustment of the wage scale. The abnormally large increase in the production of anthracite in 1907 makes up for the depletion of stock caused by this suspension and represents a little more than half the normal increase in the production of 1905. The total number of men employed in the coal mines of Pennsylvania in 1907 was 330,529, of whom 167,234 were employed in the anthracite mines and 163,295 in the bituminous mines. There were in 1907, 708 men killed in the anthracite mines and 806 in the bituminous mines. The bituminous coal production has shown a rapid growth as compared with that of anthracite during recent years. Pennsylvania far outranks the other States in the manufacture of coke. In 1907 it produced more than 65 per cent. of the total coke output of the United States. There were produced 26,513,214 short tons, as compared with 23,060,511 short tons in 1906. About half this quantity is manufactured in the Connellsville region. The total value of the product in 1907 was \$67,638,024, as compared with a value of \$54,184,531 in 1906. In the production of pig iron Pennsylvania is also prominent. The production for 1907 remained practically the same as that of 1906, the respective figures being 11,348,549 and 11,247,869 tons. Pennsylvania is first among the States in the production of natural gas. In 1907 the product was valued at \$18,844,156, as compared with a value of \$18,558,245 for the product of 1906. The production of petroleum has shown a steady decrease since 1896. There were produced in 1907 9,999,306 barrels, as compared with 10,256,893 barrels in 1906. Pennsylvania now ranks sixth among the States in the production of petroleum, while in 1906 it ranked fifth. Pennsylvania is first among the States in the production of Portland cement. A marked increase was shown in 1907 over the product of 1906. In the former year, 20,393,565 barrels, valued at \$19,698,206, were produced, as compared with 18,645,015, valued at \$18,598,439 in 1906. Three counties of Pennsylvania produced over 60 per cent. of the entire slate production of the country. There was quarried in 1907 slate to the value of \$3,855,640, as compared with a value of \$3,522,149 for the output of 1906. The stone produced in the State in 1907 was valued at \$9,132,372, as compared with a value of \$8,804,776 in 1906. Stone is produced to a greater amount in Pennsylvania than in any other State. Other important mineral products of the State are, in order of their value in 1907: coal products, \$20,291,621; sand and gravel, lime, iron ores, clay, natural ce-

ment, glass-sand, mineral waters, metallic paint, feldspar, ochre, sand-lime brick and umber; and unclassified are aluminum, bromine, abrasive materials, quartz, salt, and talc.

The Chief of the Bureau of Anthracite Coal Statistics estimated that the shipments of anthracite for 1908 were 64,237,076 long tons, against 67,109,393 long tons in 1907. Assuming that the quantity of coal sold to local trade and used at the mines decreased in the same proportion, the total production in 1908 amounted to approximately 73,000,200 long tons, as against 76,432,421 long tons in 1907. See COAL.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the figures of the United States Department of Agriculture, were as follows: corn, 57,275,000 bushels, valued at \$41,811,000, from 1,450,000 acres; winter wheat, 28,415,000 bushels, valued at \$29,121,000 from 1,590,000 acres; oats, 27,382,000 bushels, valued at \$15,060,000 from 1,003,000 acres; barley, 234,000 bushels, valued at \$147,000 from 9000 acres; rye, 5,660,000 bushels, valued at \$4,358,000 from 343,000 acres; buckwheat, 4,992,000 bushels, valued at \$3,744,000 from 260,000 acres; potatoes, 19,944,000 bushels, valued at \$15,955,000, from 277,000 acres; hay, 4,677,000 tons, valued at \$56,124,000 from 3,118,000 acres; tobacco, 39,008,000 pounds, valued at \$4,095,840, from 29,440 acres. The State ranks second in the production of rye and fourth in the production of oats. In the production of buckwheat it ranks second, being surpassed only by New York. The corn crop of 1908 showed a decided increase over that of 1907, which was 45,922,000 bushels. The wheat crop showed a slight decrease, the figures for 1907 being 30,090,000 bushels. Oats, too, was a slightly decreased product, the figures for 1907 being 29,687,000 bushels. Hay showed a considerably increased production in 1908 over the crop of 1907, which was 4,568,000 tons. The tobacco crop was slightly smaller than that of 1907, which was 40,320,000 pounds. The number of farm animals on Jan. 1, 1909, was estimated to be as follows: horses, 619,000; mules, 43,000; dairy cows, 1,152,000; other cattle, 965,000; sheep, 1,135,000; swine, 990,000. The wool clip in 1908 was estimated at 5,700,000.

MANUFACTURES. The census of 1905, covering industries carried on in factories, reported \$1,995,837,000 capital, 763,282 wage-earners, and \$1,955,551,000 in value of products, these three items having increased, 1900 to 1905, respectively, 37.7, 15, and 18.5 per cent. The State easily ranks second in every item, being exceeded by New York alone. Of the wage-earners, 134,344 were women and 34,451 were children under 16. The value of products of leading industries in 1905, and, in parentheses, the per cent. of increase in value over 1900, were as follows: Steel works and rolling mills, \$363,773,000 (9.3); foundry and machine shop products, \$119,651,000 (8.5); blast furnaces, \$107,455,000 (5.8); leather, \$69,428,000 (24.8); railway repair shops, \$61,021,000 (41.7); petroleum refining, \$47,459,000 (35.7); silk and silk goods, \$39,333,000 (26.6); cigars and cigarettes, \$39,079,000 (24.1); flour and grist mill products, \$38,518,700; (30.3); sugar and molasses refining, \$37,182,000 (2.8); worsted goods, \$35,683,000 (61.4); malt liquors, \$34,863,800 (16.3); lumber and timber products, \$31,642,000 (9.7 per cent. decrease); hosiery and knit goods, \$30,753,000

(40.5); newspaper and periodical publishing, \$30,294,000 (36.5); coke, \$28,924,000 (22.9); glass, \$27,671,000 (25.7); carpets and rugs, \$27,120,000 (17.3); electrical machinery and apparatus, \$26,257,000 (37.4); wholesale slaughtering and meat packing, \$24,411,000 (36.9); cotton goods, \$24,137,000 (3.1); structural ironwork, \$23,705,000 (60); men's clothing, \$22,662,000 (slight decrease); planing mill products, \$21,928,700 (31). Other industries, with a value of products exceeding \$10,000,000 in 1905, were in the order of their rank: Steam railroad cars, tin andterne plate, woolen goods, book and job printing, chemicals, paper and wood pulp, women's clothing, boots and shoes, lime and cement, furniture, cheese, butter and condensed milk, illuminating gas, pottery and terra cotta, oil and confectionery. The combined iron and steel group of industries showed products valued at \$692,200,000, or 35.4 per cent. of the State's total value of products. The value of output of iron and steel works and rolling mills was 54 per cent. of the country's total. Pennsylvania also ranks first in leather, petroleum refining, carpets and rugs, coke, glass, and oil; and second in cotton small wares, hosiery and knit goods, silk and silk goods, worsted goods, cigars and cigarettes, planing mill products, clothing, electrical machinery and apparatus, and chemicals. the value of products credited to leading centres was as follows: Philadelphia, \$591,388,000; Pittsburg, \$165,428,800; Reading, \$30,848,000; New Castle, \$29,433,000; Johnstown, \$28,891,800; McKeesport, \$23,054,000; Scranton, \$20,453,000; Erie, \$19,911,000, and Harrisburg, \$17,146,000.

EDUCATION. The whole number of pupils of school age in the State, June 1, 1908, was 1,231,200; the average number of pupils in daily attendance, 951,670; the number of male teachers was 7488, and female, 26,525, making a total of 34,013 teachers in the State. The sum paid out for teachers' wages during 1908 was \$17,600,342.93. The total expenditure for schools for the year was \$34,070,916.94. There were in the State 2580 school districts and 33,171 schools. The estimated value of the school property of the State, June 1, 1908, was \$90,316,211.51. The average salary of male teachers per month was \$61.23, and the average salary of female teachers was \$46.85; the average length of the school term in months was 8.44. During the year the number of pupils increased 5872, the number of schools, 579; the number of districts, 6, and the amount paid in teachers' wages, \$1,803,388.90. The number of pupils in attendance in the schools of Philadelphia at the end of the year 1908 was 172,140; the average attendance was 147,876. There were 4310 schools in the city with 363 male and 3947 female teachers. The average salary of the male teachers per month was \$164.90, and of female teachers, \$77.90. The total expenditure for schools in the city during the school year was \$6,524,598.07 and the estimated value of school property was \$17,279,296.

FINANCE. The report of the treasurer for the fiscal year ending Nov. 30, 1908, shows that there was a balance in the general fund on Dec. 1, 1907 of \$10,486,410. The receipts from all sources for the year ending Nov. 30, 1908 were \$25,670,540, and the payments for the general fund for the same period were \$29,158,878, leaving a balance in the general fund on Dec. 1, 1908 of \$6,998,073, which, with the balance in the sinking fund, made the total amount in the

treasury at that date \$9,540,604. The chief sources of revenue for the year were, tax on capital stock, \$3,684,164; tax on corporate gross receipts, \$1,496,863; tax on premiums, \$1,339,346; tax on corporate loans, \$1,824,200; tax on personal property, \$4,209,361. The chief expenditures were, for hospitals and asylums for the insane, \$2,213,737; for charitable institutions, \$2,778,289; common schools, \$6,883,128; for the construction of highways, \$3,194,992. The State debt on Nov. 30, 1908 was \$2,689,617 and the sinking fund assets were \$2,642,531, leaving a net State debt on that date of \$47,085. The estimated income from the general fund for the fiscal year ending Nov. 30, 1909, is \$26,700,000.

POLITICS AND GOVERNMENT. There was no session of the State Legislature in 1908 and no general election for State officers. Several important court proceedings affecting the State were instituted during the year. On June 5, proceedings were begun to test the constitutionality of the Commodity clause of the Hepburn Act, which provides that all railroads must sever their connection with all other business except that of common carrier. Bills in equity were filed against six railroads, the Philadelphia and Reading, the Delaware, Lackawanna and Western, the Delaware and Hudson, the Pennsylvania, the Erie and the Lehigh Valley, all of which are engaged in transporting anthracite coal in interstate commerce. The Hepburn Act became operative on May 1, and Attorney-General Bonaparte, who brought the suits, asserted that these roads had owned and operated mines contrary to the law since that date, and that the products of the mines were carried into other States by the defendant companies. On Aug. 5, Judge Blair of the State Supreme Court decided that the pure food law, passed in 1907, is unconstitutional in that it violates Sec. 6, Article III. of the State Constitution, which forbids amendments to law by title only. The effect of the decision was to cause prosecution under laws previously enacted.

Trial of the persons accused of defrauding the State of large sums of money in the furnishing of the new State Capitol at Harrisburg began on Jan. 27, at Harrisburg. The defendants were John H. Sanderson, who had the contract for "trimming," Dr. William P. Snyder, former auditor general of the State, W. L. Mathues, former State Treasurer, and James Shumaker, former Superintendent of Public Grounds and Buildings. The case tried involved tables, chairs, sofas and clothes-trees furnished by Sanderson, on which fraud of \$19,000 was alleged in a bill of \$50,000. Ten other defendants were under indictment in 38 cases. After a trial lasting until March 13, the defendants were all found guilty. The former State officials were convicted for conspiracy. A second trial began at Harrisburg on May 11. In this the defendants were Joseph M. Huston, the architect of the building, the defendants mentioned above, and H. Burd Cassell, contractor for metallic furniture. The case involved the metal furniture in a single room, in which it was alleged that there was a fraudulent overcharge of \$5090.10 in a total bill of \$17,789.70. On June 12, Judge Kunkel directed the acquittal of Snyder, Mathues and Shumaker, and on June 13 the jury acquitted the other defendants. On Dec. 18, Sanderson, Snyder, Mathues and Shumaker were sentenced on their conviction on the first trial to

two years separate and solitary confinement, \$500 fine each, and the payment of the cost of prosecution. The execution of the sentence was stayed, pending the outcome of an appeal to the Supreme Court from Judge Kunkel's refusal to grant a new trial. Mathues died several weeks after the sentence had been pronounced. The acceptance of the portfolio of State by Senator Philander C. Knox will leave a vacancy after Mar. 4 in the Senate from Pennsylvania. A successor to Senator Penrose is also to be chosen in 1909.

PHILADELPHIA. An election for city solicitor, city magistrates and other city officers was held on Feb. 18. The chief struggle was between the "reform" element, and the regular organization. The result was a decisive victory for the organization. The Republicans were successful in every district in the city, save one, where a "reform" councilman was elected. Among the defeated candidates for the council was Owen Wister, the writer. The new city subway was opened for traffic on Aug. 4. In October the city celebrated with festivals and pageants the 225th anniversary of its founding. A new opera house for grand opera was opened during the year. The Bureau of Municipal Research, with the consent of the Mayor, signified its intention in November, to make an investigation into the city departments. The departmental budget for 1909 aggregated about \$27,000,000. The city council on Mar. 22 passed ordinances providing expenditures for port improvements for the city of \$1,500,000. In the election of Nov. 3, there were cast in the city 184,469 votes for Taft, and 73,779 for Bryan.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the selection of delegates to the National Convention met at Harrisburg on April 29. Resolutions were adopted instructing the delegates chosen to vote for Senator Philander C. Knox for President, as long as he should be a candidate. The Democratic State Convention on May 20 refused to instruct delegates to vote for W. J. Bryan largely through the efforts of Col. J. M. Guffey, State Chairman. For the action of the National Convention in unseating the delegates opposed to Mr. Bryan, see **PRESIDENTIAL CAMPAIGN**. In the election of Nov. 3, the State was carried for Taft by a Republican plurality of about 296,000. The detailed vote for the national ticket was as follows: Taft, 745,779; Bryan, 448,785; Chafin, 36,694; Debs, 33,913; Hisgen, 1057; Gilhaus, 1222.

OTHER STATE EVENTS. During the greater part of the year the city of Chester suffered from a street railway strike. There was much mob violence and many persons were injured. For an exhaustive account of these troubles, see **STRIKES**. On Jan. 13, in the burning of the Rhoades Opera House at Boyertown, over 100 persons were killed, either by being burned, or by suffocation. The fire was caused by the explosion of a moving picture machine, which was being used at an entertainment. The Allegheny National Bank of Pittsburgh was obliged to close its doors on May 18, owing to defalcation by the cashier, W. M. Montgomery, amounting to over \$2,000,000. There was \$550,000 of State funds on deposit in the bank. At his trial for theft Montgomery pleaded guilty. The Wabash Railroad, after spending \$30,000,000 for terminal facilities and other improvements, decided in June to abandon its attempt to operate its lines to

Pittsburg. In the week beginning Sept. 28, Pittsburg celebrated the 150th anniversary since the capture of Fort Duquesne from the French and the establishment of Fort Pitt in its stead. There was an elaborate programme, with civic parades and pageants.

The year was notable for an unusual number of fatal coal mine disasters. On May 12, seven miners were killed and several others injured in an explosion in the Mount Lookout Colliery of the Temple Coal and Iron Co., at Wilkes-Barre. Six miners were burned on June 19, in an explosion, followed by fire in the Ellsworth mine of the Pittsburg Coal Co., at Monongahela City. An explosion in the Williamstown colliery of the Susquehanna Coal Co., at Pottsville, on July 15, resulted in the death of seven miners. The most serious disaster of the year occurred at the mine of the Pittsburg and Buffalo Coal Co., at Marianna, on Nov. 28. An explosion from some unknown cause resulted in the death of every person in two pits of the mine. The number killed was about 200. The mine was considered one of the model coal mines of the world, and it had been inspected just before the explosion occurred. Floods caused great damage at Pittsburg and other places in the State in the early part of the year.

Evidences of a systematic and long continued corruption in the State Council of Pittsburg resulted, on Dec. 23, in the arrest of seven Councilmen and two bankers. Among other charges against the councilmen was that they had influenced the deposit of State money in banks for considerations paid to them.

STATE OFFICERS. Governor, E. S. Stuart; Lieutenant-Governor, R. S. Murphy; Secretary of the Commonwealth, Robert R. McAfee; Treasurer, J. O. Sheatz; Auditor-General, R. K. Young; Adjutant-General, Thos. J. Stewart; Attorney-General, M. Hampton Todd; Superintendent of Public Instruction, N. C. Schaeffer; Insurance Commissioner, David Martin; Secretary of Agriculture, N. B. Critchfield—all Republicans, except Schaeffer, Dem.

JUDICIARY. Supreme Court: Chief Justice, James T. Mitchell; Associate Justices, J. Hay Brown, Wm. P. Potter, John Stewart, D. Newlin Fell, S. L. Mestrezat, and John P. Elkin.

The State Legislature of 1909 is composed of 39 Republicans and 11 Democrats in the Senate, 173 Republicans and 34 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section *Congress*.

PENNSYLVANIA, UNIVERSITY OF. An institution of higher learning, founded in 1740 at Philadelphia. The attendance shows a continued increase, being 4,570 in all departments at the beginning of the academic year 1908-9. Of this number 2,989 students belonged to the college, 353 to the graduate school, 327 to the law school, 599 to medicine, 385 to dentistry, and 150 to the department of veterinary medicine, or a total of 4,763, which, deducting 193 for students duplicating certain courses, makes a net total of 4,570. These students not only represent various States in the Union, but also many countries in various parts of the world, including a number of South American students, 21 from Australia, 31 from China, and 9 from Japan. The members of the various faculties have also increased and now number 454, including professors, assistant professors, and

other officers of instruction. Ten years ago the total student list for the whole university was 2,790, and the officers of instruction numbered 258. The different departments of the University show progress in many ways in addition to membership increase, such as a continued strengthening of curriculum, and the steady growth of building operations for university needs. Important additions have recently been made to the hospital and dormitories, and the new buildings of the veterinary department. The University library contains over 285,000 catalogue volumes and many unbound pamphlets. The amount of the productive funds in 1908 was \$5,337,796, and the total income, including tuition and incidental charges, \$540,624. The Provost is Charles C. Harrison, LL.D.

PENOLOGY. The interest manifested in recent years in prison reform and the treatment of criminals showed itself in 1908 in legislation, in the discussions at the meeting of the American Prison Association and in the appointment by President Roosevelt of a committee of investigation. The American Prison Association held its annual meeting at Richmond, Va., Nov. 13-19. There was in attendance six hundred and thirty registered members and visitors from thirty-seven States, Canada and Cuba. The discussions revealed the topics of greatest immediate interest in the subject of penology. The subject of uniform criminal laws for all States was animatedly discussed. The Prison Physicians' Association discussed the subjects of tuberculosis in prisons and the sterilization of habitual criminals. The association provided for a committee to inquire into the advisability of extending the parole system to life prisoners. The next session of the association meets at Seattle. The International Prison Congress meets at Washington in 1910.

Several States took noteworthy action. Georgia (q. v.) was deeply stirred by an inquiry into the convict lease system and passed a law putting an end to that system in April, 1909. Massachusetts enacted three new probation laws as the result of the efforts of the Massachusetts Prison Association. These provide for the extension of mutual aid and knowledge of conditions among the various probation officers of the State. A committee on probations to be appointed by the Chief Justice of the Superior Court was authorized. Ohio provided for a most advanced system of probation and parole. In all cases except the most reprehensible crimes the defendant may be sentenced to the penitentiary or the reformatory but with the execution of the sentence suspended. He then passes under the control of the board of managers of the institution and is subject to the rules governing persons paroled from that institution. Field officers are to be appointed to oversee both those paroled and those on probation and are to have power to arrest such without a warrant. The board of managers may terminate a sentence when they see fit and they may also discharge probationers from further supervision. Persons sentenced to jails or workhouses may be put under the care of court probation officers, though not for more than two years. Provision is made for salaried probation officers in cities which have police courts; policemen are made eligible to these offices.

A report of the Maryland Commission on Indeterminate Sentences, submitted in March,

recommended that the probation system in use in Baltimore should be extended to the entire State. This provides for a considerable number of probation officers supervised by a central board; this board maintains an interest in the prisoners after their discharge and assists them in finding employment. The commission recommended the adoption of cumulative sentences and a revision of the State's penal code.

New York has been one of the foremost States in prison reforms. The report of the State parole board, March, 1908, stated that since 1901, 1,378 prisoners had been paroled and of these only 16 per cent. had broken parole. This was considered very favorable, since the system during these years was undergoing modification and experimentation. In New York City, Miss Maude E. Miner, while performing the duties of a probation officer for the Night Court, saw plainly the necessity of a home where women could be taken temporarily from the various city courts. Consequently, on Feb. 1, she opened a home where such women can find friendly protection for a few days while probation officers are investigating their stories and finding their friends. In June the New York Probation Association was formed to take control of this home and to coördinate and develop the probation work of the city. The Board of City Magistrates approved the home, and, in his annual report, the president of the board strongly emphasized the usefulness of such a means of bringing into play the saving influence of personal sympathy. During the year the administration of the New York City Reformatory for Misdemeanants on Hart's Island was severely criticized. It was alleged that the buildings were antiquated and the discipline poor; large and small boys were housed together with no attempt at classification. The result of these conditions is that the reformatory fails to reform. The State Legislature provided for a commission to investigate conditions and methods of procedure in the inferior criminal courts of New York, Rochester and Buffalo.

CANADA. The harvesting season in Manitoba was marked by such a scarcity of laborers that the government advised the releasing of prisoners held for petty crimes on condition that they engage in farm labor. In many localities advantage was taken of this, the prisoners receiving from two to three dollars per day.

UNITED KINGDOM. A new probation law was enacted by Parliament which permits a person found guilty of a minor offense to remain unconvicted on the records provided he signs the pledge and avoids further delinquency. In the *Contemporary Review* for October, English prisons for females are characterized as small, unsanitary and humiliating in discipline, while the occupations learned are said to be of neither economic nor educational value. The writer emphasized the necessity of trained nurses as matrons, of the use of indeterminate sentences and probation and devices, such as more comfortable quarters and neater clothing, for arousing enthusiasm and social spirit. The official report of the prison population of England shows that the total prison population in England and Wales in 1908 was 196,233. The average daily prison population was 17,719, of whom 2,664 were females. Only 5 per cent of whom 2,664 were females. Only 5 per cent. of 78.3 per cent. could read and write imperfect-

ly. The number of convictions per 100,000 of the population was 505.4 in 1908, as compared with 568.9 in 1904 and 483.4 in 1900.

PERKINS MEDAL. See CHEMISTRY, INDUSTRIAL.

PERNTNER, JOSEF MARIA. An Austrian meteorologist, died in Dec., 1908. He was born in Neumarkt, Tyrol, Austria, on March 15, 1848, was educated at Innsbruck and Vienna, in 1880 became assistant, and in 1884 substitute on the staff of the Vienna Meteorological Station. In 1885 he was *privatdozent* in the University of Vienna, in 1890 assistant professor at Innsbruck, and in 1893 full professor of physics there. In 1897 he was made professor of physics at the University of Vienna, and director of the Meteorological Station, succeeding Hann. He made a special study of meteorological optics. He pointed out the relation between the colors in rainbows and the size of raindrops, and after a careful investigation pronounced useless the employment of explosives to avert hail-showers. He published *Meteorologische Optik* (1902).

PERRIER, EDMOND. See ANTHROPOLOGY.

PERRY, DAVID. An American soldier, died in Washington, May 18, 1908. He was born in Connecticut on June 11, 1841, was appointed a second lieutenant of cavalry in 1862, and served in that branch of the service until his retirement as colonel in 1898. He served throughout the Civil War in the Cavalry Corps of the Army of the Potomac, and during the remainder of his career was almost continuously on duty on the frontier, serving in nearly all the important Indian wars of the period. His best known service was his capture of Captain Jack, the Modoc chief, in 1873 after the latter's murder of General Canby. He was once rewarded for Civil War service and twice for gallantry in Indian engagements. In 1904 he was made brigadier-general and retired.

PERSIA. An independent State of western Asia. Area, 635,000 square miles, a large part being desert; population, 9,000,000, one-fourth nomads. The estimated population of the principal cities is: Teheran, the capital, 280,000; Tabriz, 200,000; Isfahan, 70,000; Meshed, 60,000; Kerman, 60,000; Yazd, 45,000.

PRODUCTION, COMMERCE, ETC. The naphtha works at Cheleken were reported in 1908 to be turning out daily 12,000 poods (1 pood=36 lbs.), selling on the average at 13 cents per pood. The Tashkend Railway is reported to have purchased of these works several million poods of naphtha in 1908. Russian traders were erecting a cotton spinning mill at Termez—the first in the country. The imports and exports in 1906-7 amounted to 431,040,000 and 353,377,000 krans respectively (1 kran=about 8 cents), against 386,463,000 and 293,143,000 in 1905-6. The principal imports are cotton fabrics, sugar, tea, woollens, petroleum, iron and steel goods, and the precious metals. The principal exports in 1906-7 were as follows: Fruits, 55,030,000 krans; carpets, 48,442,000; cotton, 46,689,000; fish, 32,174,000; rice, 25,518,000; raw silk and cocoons, 17,068,000; rubber, 15,889,000; wool, 14,928,000; opium, 14,812,000; hides and skins, 13,668,000; silk goods, 5,819,000; living animals, 5,616,000; cotton goods, 4,878,000; copper, 3,285,000; cereals, 3,181,000.

The trade with the principal countries of origin and destination in 1906-7 was as follows, in krans:

From and to	Imports	Exports
British Empire	132,302,000	36,629,000
Russia	222,404,000	225,380,000
Turkey	13,027,000	59,034,000
Afghanistan	6,330,000	4,617,000
France	23,864,000	13,963,000
Germany	8,335,000	1,514,000
Austria-Hungary	14,931,000	29,000
United States	559,000	3,130,000

There is but one six-mile railway from Teheran to Shah Abdul-azim. Several carriage roads have been constructed, mostly by Russian companies. The principal cities are connected by a regular postal service. There is a semi-weekly postal service to Europe via Russia, and a weekly one to India from Bushire, on the Persian Gulf. There are about 3,920 miles of telegraph.

The Imperial Bank of Persia, an English corporation, with a capital of £650,000, has the exclusive right to issue notes. It has branch offices and agencies in the principal cities of Persia and in Bombay, India. The Russian "Banque d'Escompte," at Teheran, is connected with the Russian State Bank. In 1907 a concession was granted for a national bank with exclusively Persian capital, which is to amount to about \$25,000,000. In the same year a concession was granted for a German bank, with a capital of \$1,000,000, for a term of 30 years.

GOVERNMENT. In Jan., 1906, the Shah, hitherto an absolute monarch, consented to the convocation of a National Council, which met at Teheran on Oct. 7. The constitution of Dec. 30, 1906, signed by the late Shah and confirmed by his successor on Feb. 11, provides for the creation of a Parliament, consisting of a National Council and a Senate. The members of the former are to be 156 in number, but may be raised to 200. They are to be elected for two years by six classes of voters, namely, princes of the reigning family, priests and religious students, nobles, merchants, owners of land worth at least \$1,000, and tradesmen. The National Council is to have full control over the government, including the appointment of responsible ministers, internal administration, finance, concessions, and treaties, excepting such as in the interests of the State may require secrecy. The Senate is to consist of 60 members, of whom 30 are to be appointed by the Shah and 30 elected by the National Council; of each class of members, 15 are to be from Teheran and 15 from the provinces. In case of disagreement, the two houses are to meet together. In case of further disagreement, the Shah may, with the consent of the Senate and the ministers, dissolve the National Council and call for new elections. A new constitution, signed by the Shah on Oct. 8, 1907, limited the Shah's prerogatives and his ecclesiastical authority, granted liberty of conscience, of the person, of speech, press, association, and education, and defined the duties of Parliament and the responsibility of ministers.

The National Council which was elected and met in 1907 consisted of only 111 members, and there were 52 members from Teheran, whereas the constitution assigned to it only 30 members. No Senate has yet been elected. On Nov. 23, 1907, the Shah published an edict abolishing the constitution, but on the follow-

ing day he was compelled by the British and Russian representatives at Teheran to retract his edict and reestablish the organic law.

FINANCE. No official statistics of revenue and expenditure are published. About half the revenue is derived from taxes in money or in kind paid by villages, towns, and districts, each of which is responsible for a fixed sum. The other half is derived from customs, posts, telegraphs, fisheries, mines, and other concessions. For 1906-7 the revenue was estimated at 80,000,000 krans. The English £500,000 loan of 1892 has been extinguished, the foreign loans now outstanding being the Russian loan of 1900, 22,500,000 rubles, and the Russian loan of 1902, 10,000,000 rubles. One condition of the 1900 loan was that Persia shall contract no foreign loans without the consent of the Banque d'Escompte until the extinguishment of the loan. A Russian financial agent for Persia is permanently stationed at Teheran.

ARMY. The official list places the strength of the regular army in 1908 at 91,334, consisting of 63,865 infantry, 5,309 artillery, 1,800 Cossacks, 14,957 irregular cavalry, and 5,403 frontier and trade route guards. But the number actually with the colors is estimated at only about 30,000, and the war effective at 60,000. There is no navy.

HISTORY.

REACTION. The Shah had taken his oath to observe the constitution before the Mejliss (Parliament) on Nov. 12, 1907, and renewed it on Dec. 22, after the resignation of the ministry and the appeal of the Nationalists to the Powers against his resumption of arbitrary rule, but the beginning of 1908 saw the reaction in full swing. The Shah did not keep his promises and the disorder and discontent continued. An attempt was made on his life on Feb. 28, 1908, when a bomb was thrown at him while on his way to the palace, killing several men and horses but leaving him uninjured. The cabinet resigned early in May, and in the following month rumors of a *coup d'état* began to spread. Armed forces of the Nationalists gathered for the protection of Parliament and revolutionary placards were posted in the city. Parliament demanded the dispersal of the reactionary palace clique and at first the Shah seemed disposed to accede. On June 4 he withdrew from the palace and with a strong guard formed a camp in the Royal Garden outside the western gate. On June 15 he sent an ultimatum to Parliament demanding the dispersal of the armed Nationalists around the Mejliss buildings and Parliament promptly obeyed. Parliament, however, submitted a memorandum asking him to observe the constitution and the principle of ministerial responsibility and to cooperate for the restoration of public confidence. To this he promised a written answer, but he declared at once that he would not surrender the throne without an appeal to the sword and he demanded the arrest and punishment of the Nationalist leaders.

THE COUP D'ETAT. The army was disloyal, but in Teheran the Shah had at his disposal a force of Cossacks, of whom, in violation of his promise to the Mejliss that they should be placed under the ministry of war, he still retained control. Under their Russian commander, General Liakhoff, the Cossacks on June 25 surrounded the Parliament buildings, taking the Nationalists by surprise. Guns were fired at

close range and the defenders were rapidly dispersed. The public buildings and some of the neighboring houses were looted and severely damaged. Many of the Nationalists were killed, including several of the deputies. Twenty-five of the Nationalist leaders were taken prisoners and on the following day two of them were hanged. In the course of the fighting many innocent persons lost their lives. Parliament was dissolved for three months, a new election being promised. Martial law was proclaimed and the city was virtually at the mercy of the Cossacks. Leading members of the Mejliss took refuge at the embassies and the British and Russian representatives urged the Shah to take measures for the restoration of peace and order. The Shah complained of the protection afforded by the embassies to the refugees, but the British government in reply referred to the number of executions in the city without trial. Pickets having been stationed near the British embassy, the British representative demanded an apology for this and other insolent acts of the Cossacks, and on July 11 the Shah's formal apology was tendered.

INTERNAL DISORDERS. Throughout the year the Shah continued to rule in violation of the constitution. Meanwhile the province of Azerbaijan was in revolt and some serious fighting had taken place in the capital, Tabriz, between reactionaries and revolutionists. European fugitives sought the protection of the Russian Consuls-General. By the middle of July the Shah's troops held only a comparatively small portion of the city, the rest being in the hands of the revolutionists who alleged that they were fighting to preserve the constitution which had been granted by the present Shah and his predecessor. The Shah's general, Rakhim Khan, could make no headway against the revolutionists and was withdrawn after some sharp fighting in the street. His emissary, Ained-Dowleh, on demanding surrender, was met by a counter-request for amnesty, admission of their party to the government, the banishment of the reactionaries and the calling of a national assembly. On Sept. 8 the British and Russian governments presented an identical note, calling the Shah's attention to the disturbances in the provinces, especially at Tabriz, and the danger to the lives of foreigners, and urging him to order the promised elections as soon as possible to reassure the people as to the maintenance of the constitution. They advised the convocation of the new Mejliss on Nov. 15. On Sept. 11 the Shah's troops were defeated at Tabriz, where Sata Khan, the Nationalist leader, was now in control, and the Shah offered to grant a constitution but only on condition that the Nationalists of Tabriz lay down their arms and surrender four of their leaders, including Sata Khan. The Tabriz revolutionists, on the other hand, demanded first, the reestablishment of the Mejliss, saying that if this were done they would disarm and permit their chiefs to be tried by judges chosen by the Mejliss. Affairs were at a deadlock so far as Tabriz was concerned, and in October it was announced that the Shah had abandoned all operations against the city for the winter. Anarchy in the northern provinces continued and Russian residents at Tabriz sent their families home, thinking there was no prospect of the return of order.

THE SHAH'S SHIFTING POLICY. On Sept. 23, the Shah ordered a new Mejliss to meet on Nov. 14, especially enjoining that it should be "upright and pious." New rules for the election were required to be ready on Oct. 17. Tabriz was expressly excluded from the operation of the decree. Nothing was done, however, to carry the measures into effect, in spite of a petition of the Nationalists and an urgent request of the British and Russian ministers that the Shah should keep his pledge (Nov. 12). On Nov. 19 he called a meeting of merchants at which one of his supporters referred to the "King-worshipping" spirit of Persia and said the "impious" Mejliss had aimed at undermining that spirit and curtailing the Shah's prerogatives. The Shah declared he was responsible to God and deeply pained by the blood shed in his dominions. He afterwards issued a rescript addressed to the reactionary Moslem priests, saying: "Now that you have declared that the establishment of a Mejliss is contrary to the laws of Islam and therefore have pronounced it to be unlawful, and now that also the Mollahs in the provinces have by letters and telegrams pronounced it to be unlawful, we have, this being the case, changed our mind, and shall never again mention the name of such an institution." Vigorous protests followed immediately from the British and Russian governments, but although the decree abolishing the constitution was withdrawn, the year closed without prospect of a return to the Parliamentary régime. Meanwhile, the disorders attendant upon a weak and discredited central government continued. Disaffections had spread to the southwest provinces. The vice-governor of Kerman was killed and the city seized, and at Sultanieh the governor was expelled. It was reported that the priests had proclaimed a Holy War against the Shah. In Tabriz it was questionable in December whether the Shah or Sata Khan would prevail. It was understood that Russia would recognize either, if order were restored in the province of Azerbaijan. The treasury was depleted and the Shah's servants were ill-paid or not paid at all. The highways were unsafe, the tribesmen having received, it is said, the privilege of looting in return for aiding the cause of the reactionaries. Among other outrages may be mentioned the robbing and killing of the Governor-General of the Persian Gulf ports. At Meshed the Nationalists routed the garrison and seized some of the government officials. The constitutional movement was by no means crushed. The course of Great Britain and Russia in supporting the constitution had materially aided them, and on Dec. 7 the Nationalists of Teheran addressed a circular to the diplomatic body thanking them for their sympathy with the cause of freedom and blaming the court for its refusal to grant the constitution.

DIFFICULTIES ON THE FRONTIER. The trouble over the Turco-Persian frontier continued in 1908. The town of Suj-Bulak was attacked on Jan. 11 by a large force of Kurds, including, it is said, a number of Turkish regulars, and both Kurds and Persians lost heavily. The joint Turco-Persian delimitation commission was in session at Urumiah in February. The Persians charged the Turkish general, Fazyi Pasha, with aggression, and the Turks replied that he had merely employed force in putting down the Kurds and that he had occupied Suj-Bulak at

eth request of the Sunnite inhabitants, but he was ordered to return to Turkish territory. Difficulties arose also with the Russians, of whom several were killed on the border of Azer-bijan. On April 13 the Kurdish raiders attacked the Russian garrison at Belesuvar. Russian troops crossed the frontier and defeated the Kurds in the mountains of Kara Dag. Some Persians were killed and Russia indemnified the families at the demand of Persia, but in return asked for reparation for the Kurdish depredations and for the murder of the Russian minister Gribayedeff at Teheran and the wounding of the Russian financial agent. In the summer the depredations of the Turkish Kurds on the frontier continuing, the British, Russian and Persian ministers complained to the Porte, but the latter denied that the Turkish troops had passed beyond the frontier zone, though it ordered at the same time the recall of any detachment that might have done so. The change in the Turkish government did not avert the danger of further depredations from Turks and Kurds who were gathered in the neighborhood of Urumiah, though the new Turkish ministry made fair promises to Persia, assuring her of a just settlement of the boundary dispute and the withdrawal of Turkish troops from her territory.

PERU. A republic of South America. Its area is probably about 440,000 square miles, though some estimates bring it up to nearly 700,000 square miles. Estimates of the population vary from under 3,000,000 to over 4,600,000. Over one-half are pure Indians, one-fourth are mixed, one-sixth are white, and negroes and Chinese make up each about two per cent. of the total population. The principal cities, with their enumerated or estimated populations, are: Lima, the capital, 140,884, including 5,522 Chinese and Japanese (June 26, 1908); Arequipa, 35,000; Callao, 31,000; Cuzco, 10,000; Iquitos, 10,000; Cerro de Pasco, 10,000. The government encourages immigration by paying the transportation of laborers whose introduction is desired by their employers.

EDUCATION. Instruction is free in the public schools maintained by the municipalities. In 1903 there were 1,871 primary schools, with 104,970 pupils, about one-fourth the total population of school age. High schools are maintained by the Federal government in the capitals of departments. Private high schools in Lima and other towns are under the direction of European teachers. American women have been engaged as teachers in the normal schools. Lima contains the University of San Marcos, a school of mines and civil engineering, a national agricultural school, a school of arts and crafts, etc. Arequipa, Cuzco, and Trujillo have small universities. The federal government contributes about \$100,000 a year toward primary education and sends students to American universities. In 1908 a bill was under consideration for establishing schools of agriculture and allied subjects in each department.

MINING. The mineral resources are enormous. Cerro de Pasco is the centre of the mining industry, the work being done by "cholos," natives of mixed Spanish and Indian origin, as well as Austrian Slavs, Poles, Bohemians, Greeks, Spaniards, and Italians. Americans are the superintendents and managers of the mines, foremen, mechanics, railway and clerical employees. The Cerro de Pasco Company, organ-

ized by New York financiers, had invested, by the beginning of 1908, \$17,500,000 in its enterprises, which include a railroad of 83 miles from Oroya to Cerro de Pasco and a great smelter with an annual capacity of 30,000 tons of copper. Its shipments of copper to the United States in 1907 amounted to 20,152,000 pounds, most of it via Panama. The total mineral production of Peru in 1907 was valued at £3,479,057, against £2,610,574 in 1906. (The Peruvian pound, like the British, equals \$4.866½.) The principal minerals are copper and silver. In 1907 the production of copper was valued at £1,709,337, against £906,055 in 1906; of silver, £1,229,951, against £972,958 in 1906. Other mineral products are coal, anthracite and bituminous, petroleum, gold, quicksilver, lead, bismuth, nickel, salt, borates, sulphur, and antimony. The production of all minerals, excepting coal, increased in 1907 over 1906. Coal is scarce and dear. Enormous deposits lie practically in sight, but are unworked, with the exception of one worked by an American company. In 1906 there were 67 reduction plants employing 13,961 workmen.

A concession for exploiting the pearl fisheries of Sechura Bay was granted on Oct. 31, 1908.

AGRICULTURE. The chief agricultural region consists of a series of fertile valleys parallel to the coast line—from 1,300 to 1,400 miles in length—and extending to the chain of the Andes, the width varying from 25 to 75 miles. Other rich farming districts lie in the plains and valleys of the mountains, but they are less thickly populated and less productive. The cereals—wheat, barley, and corn—are produced in these districts and on the coast. The coast region is more important as the source of production of the three staple tropical crops of Peru—sugar cane, cotton, and rice. The rice production in 1906 was estimated at 60,000,000 bushels. The sugar output in 1908-9 was estimated at 160,000 metric tons, against 145,000 tons in 1907-8 and 169,000 in 1906-7. The rum distilled in 1907-8 amounted to 30,563 gallons. The best Peruvian cotton is grown near Piura and is shipped from Paita. The total export from Peru in 1906 was 23,253,090 kilos (1 kilo=2 1-5 lbs.). The crop of 1907 was larger, being estimated at 55,000 bales of 500 pounds each, and the prospects for the 1908 crop were reported good. The larger plantations have modern ginning machines and hydraulic baling presses. Cotton seed and oil cake are exported to Europe, while the oil is used locally in the manufacture of soap. There is a constantly increasing demand for Peruvian cotton in the United States, it being quite distinct from the American variety. The export of rubber through Iquitos, the emporium of the Peruvian rubber trade, amounted to 2,358,839 kilos in 1907, against 2,152,421 kilos in 1906. The rubber is gathered mainly from trees growing wild in the Amazon basin. Coca, from which cocaine is made, is a staple product. Other agricultural products are coffee, tobacco, ramie, silk, olives, wine, cinchona, medicinal and dye plants. Wool from sheep, alpaca, and llama, and vicuña skins exported. The annual wheat consumption averages 50,000 tons, the bulk coming from Chile, and a large part of the remainder from Australia.

MANUFACTURES. The manufacturing industries, except in the treatment of mining products, are as yet in their infancy. The native

industries comprise hat-plaiting and the weaving of coarse woolen blankets and cloth. There are some cotton factories, which turn out about 20,000,000 yards a year of the coarser sorts of cloth. Recently an American company established a factory equipped with the most modern appliances for the manufacture of white goods. Other manufactures are beer, cigars, clothing, soap, matches, candles, olive oil, cotton-seed oil cake, saddlery, furniture, etc.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1906 amounted to £5,632,349 and £6,600,325, respectively; in 1907, £5,514,787 and £5,747,732 respectively. The value of the principal exports in 1906 was: Sugar, £1,415,000; minerals and metals, £1,188,000; gums and resins, £1,038,000; wool, £520,000; cotton, £471,000; guano, £362,000; copper, £158,000; hats, £90,000; cocaine, £78,000; crude rubber, £76,000; rice, £62,000. According to the report of the United States consul-general at Callao the value of the trade with the principal countries of import and export in 1907 was as follows:

From and to	Imports	Exports
Great Britain	\$7,954,811	\$12,386,959
United States	5,751,996	6,409,657
Germany	4,364,974	1,775,793
France	1,414,380	2,246,875
Belgium	1,264,302	1,273,602
Chile	1,176,709	2,388,161
Australia	1,506,935	.....

The length of railways in 1908 was 1,337 miles, and some 220 miles were under construction. The greater portion of the railways is worked by the Peruvian Corporation, an English company. The length of State telegraph lines in 1906 was 3,360 miles; of private telegraph lines, 1,180 miles. The port of Callao was entered in 1907 by 710 vessels of 1,278,307 tons, and cleared by 688 vessels of 1,248,835 tons. An American line has recently been established between New York and Iquitos.

FINANCE, ETC. The budget for 1908 estimated the revenue at £2,997,433, and the expenditure at £3,043,032. The principal estimates of revenue were: Customs, £1,362,392; taxes, £948,020; salt monopoly, £145,000; posts and telegraphs, £101,500. The principal estimates of expenditure were: Administration, £431,235; justice and instruction, £428,622; finance and commerce, £422,938; war and marine, £504,169; public works, £304,977. The army is recruited by voluntary enlistment and consists of 7 battalions of infantry of 300 men each; 7 squadrons of cavalry of 125 men each; 1 regiment of artillery of 590 men; and 6 batteries of mountain artillery; with a total peace effective of 4,000 men. There is also a national police force of 2,500 men. The navy at the beginning of 1908 consisted of two protected small cruisers, aggregating 6,400 tons, and one unprotected small cruiser, of 1,700 tons. President José Pardo, whose term expired on Sept. 24, 1908, was succeeded by Augusto B. Leguía.

HISTORY. Early in November, 1907, a detachment of Peruvian troops attacked the Brazilian fort at Leticia, on the frontier, and subsequently occupied the Brazilian town of Tabatinga. But the Peruvian government soon ordered its troops to withdraw and made suitable apology. On Dec. 18, 1907, the first treaty of amity with Chile since the disastrous war of 1879-83 was concluded. On May 29, 1908, President Pardo issued a decree abrogating all previous decrees

and general resolutions concerning the exploitation of leased lands in the mountain country. This measure was made necessary by the fact that the improper exploitation of these lands, with their wealth of timber, rubber, and similar products, had become prejudicial to the interests of the nation. The decree was to remain in force until Congress had enacted necessary laws. Concessions made and contracts entered into in accordance with the earlier laws were, however, not to be affected by the decree. On May 27, 1908, Augusto B. Leguía was chosen President of the Republic. He was born at Lambayeque, Peru, in 1863. The greater part of his life was occupied in business enterprises. He served in the militia in the Peruvian-Chilean war, in which he was present at the battle of Miraflores. Later, he was successively a representative of the New York Life Insurance Company in Peru, Bolivia and Ecuador; the manager of La Sud America, a Peruvian life insurance company; and manager of the British Sugar Company. He also founded several industrial companies. During the Pardo administration he was Minister of Finance, in which capacity he served with distinction.

The new President was inaugurated on Sept. 24. In his inaugural address he praised the work of the outgoing administration and declared that he would follow the wise and progressive programme initiated by his predecessor. The subjects to which he declared he would devote his especial attention were the extension of primary education; the extension of the railways; the encouragement of immigration, especially of artisans and agriculturists; the irrigation of large tracts on the coast, to begin with in the great agricultural districts of Tumbes, Piura, and Santa; the proper sanitation of the principal ports and inland cities; and the amendment of the election law. The first Vice-President, Larrabure Y. Unanue, and the second Vice-President, Dr. Belisario Sosa, were inaugurated on the same date. The new cabinet was composed as follows: Minister of Finance and President of the Cabinet, Eulogio I. Romero; foreign affairs, Meliton F. Porras; interior, Dr. Miguel A. Rojas; justice and instruction, Dr. Manuel Vincente Villaran; war and marine, Capt. Juan Manuel Ontaneda; public works, Francisco Alayza Y Paz Soldan.

PETROLEUM. The production of petroleum in the United States during 1908 was estimated by the *Engineering and Mining Journal* at 184,734,678 barrels, each of 42 gallons, valued at \$131,779,288, as compared with 164,347,930 barrels valued at \$123,260,948 in 1907, or an increase in quantity of 20,386,748 barrels. These figures were in more detail than the preliminary estimate of the U. S. Geological Survey, which placed the production between 175,000,000 and 180,000,000 barrels. In 1908 the petroleum industry continued to show growth and the use of fuel oils in manufacturing and on locomotives continued to increase, especially in regions where coal was obtained only by long hauls. California headed the list of States, producing petroleum with an estimated output of about 45,000,000 barrels, valued at an average of about 50 cents per barrel, as compared with 39,748,375 barrels valued at \$14,699,956 in 1907, or an average of about 37 cents per barrel. Not only was the yield of many companies doubled in 1908 over that of the preceding year, but a number of new wells were

sunk and new country was prospected. In October and November the daily output reached the phenomenal figure of 140,000 barrels. The increase of production of petroleum in Illinois in 1907 continued in 1908 and important development work was done during the year in Crawford, Lawrence, and Clark counties, where by drilling down to the deepest sands the largest wells were found. In the gulf, coastal and North Texas field during 1908 there was a more normal condition of affairs than in the previous year. There was but a moderate output from the Anse Le Bute district, supplied by the original well and a few others in the immediate vicinity, but new gusher fields were developed at Markham and Goose Creek and proved good producers. In Louisiana the Caddo field was developed and seemed to be the most promising of any field in the entire Texas-Louisiana district. The year was marked by a number of suits against the Standard Oil Company, the Security Oil Company, the United Tank Line Company, and other alleged affiliated companies, and there was considerable resistance on the part of the oil companies to various laws of the State. (See TEXAS and STANDARD OIL.) In the mid-continental field, which comprises Kansas and Oklahoma, the Glenn pool near Tulsa, Okla., continued the largest producer and aggregated 50,000 barrels daily throughout the year. Production also increased in the Alluwe area, which was extended north, but in other localities and in Kansas the output declined. In the Appalachian

oil field there was again a decrease in output, but in Southeastern Ohio and West Virginia there were successful drilling operations, and the latter State was considered still to contain territory worth prospecting. The accompanying table gives the production by States and fields for 1907 and 1908:

THE PRODUCTION OF CRUDE PETROLEUM IN THE UNITED STATES.

[In barrels of 42 gallons.]

Engineering and Mining Journal.

Field.	1907	1908
California	40,085,000	45,000,000
Colorado	400,000	(a) 400,000
Gulf—		
Texas	12,350,000	11,804,000
Louisiana	4,620,000	5,886,000
Illinois	24,540,024	38,000,000
Lima—		
Indiana-Ohio	8,030,000	7,287,000
Mid-continental (c)	47,556,906	50,741,678
Kentucky-Tennessee	1,250,000	(a) 1,250,000
Appalachian (d)	25,500,000	24,240,000
Wyoming	13,000	(a) 13,000
Others	3,000	(a) 3,000
Total	164,347,930	184,734,678

(a) Estimated as the same in 1907.

(c) Kansas and Oklahoma.

(d) Pennsylvania, New York, West Virginia and eastern Ohio.

WORLD'S PRODUCTION OF CRUDE PETROLEUM, 1903-1907, BY COUNTRIES.

[Barrels of 42 gallons.]

Country	1903	1904	1905	1906	1907	Percent- age of total pro- duction
					Barrels Met. tons	
United States	100,461,337	117,080,960	134,717,580	126,493,936	166,095,335	63.12
Russia	75,591,256	78,536,655	54,960,270	58,897,311	61,850,734	23.50
Sumatra, Java, and Borneo	5,789,864	7,682,014	8,586,804	8,662,572	8,738,302	3.36
Galicia	5,234,475	5,947,383	5,765,317	5,467,967	8,360,441	3.36
Roumania	2,763,117	3,599,026	4,420,987	6,378,184	8,118,207	3.22
India	2,510,250	3,385,468	4,137,098	4,015,803	4,344,162	1.65
Japan	1,209,371	1,418,767	1,341,157	1,710,768	2,010,639	.76
Mexico					1,000,000	.38
Canada	486,637	532,575	634,095	569,753	788,872	.30
Germany	445,818	637,431	560,963	578,610	756,631	.30
Peru	49,048	49,524	37,720	42,419	65,476	.02
Italy	17,876	25,476	44,027	53,577	553,500	.02
Other	a30,000	a40,000	a30,000	a30,000	a30,000	.01
Total	194,588,558	218,955,279	215,236,018	212,900,900	262,212,299	100.00

aEstimated.

PETTIGREW, JAMES BELL. An English physiologist, died on Jan. 30, 1908. He was born at Roxhill, Lanarkshire, in 1834; was educated at Glasgow and Edinburgh universities, was appointed Croonian lecturer to the Royal Society, in 1860; president of the Royal Medical Society, in the same year; and in 1875 became Chandos professor of anatomy in the University of St. Andrews, which position he continued to hold, though he had retired from active work, a few days before his death. He was greatly interested in aerial navigation, made a special study of the mechanism of the flight of birds and insects, and constructed several flying machines. He also gave much attention to the anatomy of the vertebrate heart. On these subjects he prepared many papers for the *Transactions* of the Royal Society, and he also published a volume, *Animal Locomotion* (1873), in the *International Science Series*.

PFLEIDERER, OTTO. A German Protestant theologian, died on July 18, 1908. He was born in Stetten, on Sept. 1, 1839, studied under Baur at Tübingen in 1857-61, and for some time thereafter traveled in England and Scotland, where he became familiar with the English language. Thereafter he held pastorates in the State Protestant church, at Heilbronn and Jena, and in 1870 was appointed to the chair of systematic theology at the university in the latter city. Here he remained until 1875, when, upon the death of Troesten, he was appointed to the corresponding chair at Berlin, where he remained during the rest of his life. He served several times as dean of the theological faculty and as rector of the university in 1894-95. Professor Pfeiderer was one of the most influential exponents of modern liberal theology, and the master, as well, of a graceful literary style. His lectures in London, in 1885, and in Edinburgh, in 1894, were published in Eng-

lish, under the titles, *Lectures on the Influence of the Apostle Paul on the Development of Christianity*, and *The Philosophy and Development of Religion* (1894). He also published in English, *The Development of Theology in England Since Kant* (1890). His other works include, *Die Religion, ihr Wesen und ihre Geschichte* (1869-78); *Religionsphilosophie auf Geschichtlicher Grundlage* (1878-93); *Geschichte der Religionsphilosophie von Spinoza bis auf die Gegenwart* (1893), and *Die Entstehung des Christentums* (1905).

PHILIPPINE ISLANDS. A colonial dependency of the United States, the most northerly group of the Malayan Archipelago. The total number of islands is 3,141, the area of the total land surface is 115,026 square miles, and the total population, according to the census of 1903, was 7,635,426, of which 647,740 were wild peoples. The average density of the population was 67 per square mile. The area and population of the most important islands are given in the accompanying table:

Island	Area in sq. miles	Population	Population per sq. mile
Bohol	1,441	243,148	169
Cebu	1,762	592,247	336
Leyte	2,722	357,641	131
Luzon	40,969	3,798,507	93
Marinduque	352	50,601	144
Masbate	1,236	29,451	24
Mindanao	36,292	499,631	14
Mindoro	3,851	28,361	7
Negros	4,881	460,776	94
Palawan	4,027	10,918	3
Panay	4,611	743,646	161
Samar	5,031	222,690	44

During January, 1907, the Bureau of Health took a census of Manila, which showed the population to be 223,542 as against 219,941 given by the official census in 1903. There was an increase of 18 per cent. in the number of Americans, 2 per cent. in the number of Filipinos, 14 per cent. in Spaniards, and 27 per cent. in other nationalities. The Chinese population showed a decrease of 15 per cent. In 1906 a Bureau of Agriculture was established, composed of three divisions, administrative, plant industry, and animal industry.

AGRICULTURE. Owing to the resignation of the Director of Agriculture on June 3, 1907, and to difficulties in keeping the working force up to the desired standard, the bureau had not done as effective work as had been hoped for during 1907. The chief agricultural productions of the islands are abaca, or manila hemp, the fibre of a fruitless variety of banana plant; cocoanuts, generally in the form of the dried coconut meat, called copra; sugar, exported in a form having the lowest degree of polarization known in commerce, and tobacco exported in the leaf, also in cigars and cigarettes. In addition to these and in excess of most of them, except hemp, is the production of rice, which constitutes the staple food of the inhabitants. In the first few years of the American occupation during the insurrection and the continuance of guerilla warfare and the prevalence of Ladroneism, many of the rice fields lay idle and the importation of rice reached \$12,000,000 gold, or about four-tenths of the total imports. After the restoration of better conditions, the production of rice increased so that the amount of rice imported in 1907 was only \$3,500,000 gold. Among other products

are maguay and sisal corn, coffee, cocoa, garden truck, and fruits. The exports of hemp in 1908 were valued at \$17,311,758. The value of the export of hemp in 1907 was \$21,085,081. Of the amount exported, American purchasers represent about half. The increase in this industry may be seen by a comparison with the average annual exportation under Spanish rule for the years 1890 to 1894, when the hemp exported was valued at \$3,934,460. There is much good land available for sugar cultivation in the Philippines, but there is very little of it as good as that in Cuba, and the amount of capital involved in developing it is so great that a possibility of the extension of the sugar production is quite remote. The exportation has had a marked decrease since the Spanish days when the highest export of sugar reached 265,000 tons to all the world. The value of the export in 1908 was \$5,664,666, as against \$3,129,194 in 1907. The tobacco trade in 1908 showed a decreased export activity in both leaf and manufactures and reached a value of \$2,714,546. This was a decrease of \$404,648 over the record of 1907. In several provinces where coffee was formerly grown in quantity, efforts to produce it have been abandoned and hemp has been substituted as a more profitable crop. During the American occupation agriculture has been subject to the violent destruction which is more or less characteristic of tropical countries, due to typhoons, lack of care, cultivation, locusts and other insect pests. The most serious drawback, however, has been the rinderpest, which carried off in two or three years 75 or 80 per cent. of the draft animals in the islands. The agriculture of the island has been struggling to recover from this blow for four or five years. Appropriations were made by Congress to remedy the loss if possible by bringing in cattle from other countries, but it was found that these cattle, not being acclimated, died, most of them before they could be transferred to the farms. It has been found that nothing can restore former conditions except the natural breeding of the survivors, and five or six years will be required to restore matters to their normal condition. An Indian disease called surra, which it has been found impossible to cure, has carried off 50 per cent. of the horses of the islands. The work in relation to public lands was greatly increased in 1907, owing to the greater activity in the applications for public lands, due largely to the efforts of the bureau to attract attention to their desirability. In 1907 there were 12,029 applications for homesteads, free patents, and mineral lands, as against 3,392 applications in all the years previous. A great portion of the land in the islands is still without cultivation.

MINERAL RESOURCES. In 1908 the Bureau of Science at Manila undertook the preparation of an annual report of the mineral resources and production of the islands, and during the year the first bulletin was issued, giving the production of commercial mineral products during the year 1907. From this publication it is found that coal has been discovered in nearly every island of the Archipelago, in many places associated with petroleum. This coal is sub-bituminous, having the appearance and specific gravity of lignite, but the carbon content and streak of a bituminous coal. This coal has stood good tests in stationary and marine en-

gines, but it is not satisfactory for all requirements. Natural gas is found in Rizal province and on the island of Marinduque. Petroleum occurs on the east coast of Tayabas province, where prospecting was carried on in 1908. It is also found on the west coast of the island of Cebu. Cement lime, building stone, abrasives, gypsum, phosphate, salt, sulphur and mineral paints are among the other known metallic minerals found in the islands. Gold is the first in importance of the metallic mineral resources of the Philippines. It has been found in most of the provinces of the Archipelago, but chiefly in the provinces of Benguet, Masbate and Ambos Camarines. A small amount of gold is produced by placer mining, but this method of mining is not considered particularly successful in the Philippines. Copper is ranked second among the mineral resources, but hardly a dollar's worth has been produced since American occupation. This is due to the absence of smelters in the islands and to the difficulties of transportation from the mountain regions where the ore has been found to the nearest port to which the product could be shipped to foreign smelters. Silver has been found in small quantities, and as an associate of gold it is found in many points. During 1907 no development work was performed on any of the lead deposits of the Philippines, nor was there any developments in the iron industry during that period. Tellurium in the form of calaverite and sylvanite has been found occurring in fine streaks in Benguet and Lepanto ore. No authenticated discovery of tin has been made in the Philippine Islands. The production of metallic and non-metallic minerals in 1907 was as follows: Gold, 4,540 ounces; silver, 83 ounces; iron, 436 short tons; coal, 4,545 short tons, all from Albay Province. Statistics of clay, guano and other minerals have not yet been tabulated.

COMMERCE. In spite of the general financial depression, which was almost universally evidenced by the decline in both foreign and domestic trade, the Philippine Islands not only held their own during the fiscal year 1908, but closed the year with an increased volume of trade. This result is not attributable to any manipulation of figures or series of incidents favorable to Philippine trade, but obtains in the face of adverse conditions arising from general depression. It is directly due to advanced industry in the Islands as is shown clearly by the fact that the exportation of each of the principal products, hemp, sugar, and copra, except tobacco were substantially increased in quantity, which prevented the decline in the total value of trade which would have taken place had the country been at a standstill in the matter of production.

The total value of the foreign trade for the year aggregated \$63,748,561, an increase of \$1,240,731 over 1907, and exceeded in value that of any previous year in the history of the Islands except 1903 when the total values were shown as slightly in excess of \$66,000,000.

The value of merchandise purchased abroad was \$30,918,745, against local products exported to the value of \$32,829,816, leaving a balance of trade in favor of the Islands of \$1,911,071, thus reducing the total balance which had accumulated on the other side since American occupation and prior to 1905, to \$2,175,450, and the average balance of trade in favor of impor-

tation during the past ten years to \$217,545. The main obstacle to wiping out the balance of trade against the Islands, which should under normal conditions be large creditors in the world's markets, has been the forced importation of rice on account of inability, through loss of work animals and other local misfortunes, to produce this principal article of food at home in sufficient quantities to supply the necessities. During the past ten years \$60,082,108 has been sent to the East Indies for the purchase of rice. Such importations have been diminished since 1904, but they are still proportionately enormous, amounting in the fiscal year 1908 to \$5,861,256 or 19 per cent. of all imports. A controlling factor in the year's trade which prevented the large increase in values that might have been expected from the greater quantities of products exported, was the unprecedented decline in the value of hemp, due no doubt to the contraction of business abroad resulting from widespread financial depression. While the quantity exported in 1908 was 6,121 tons above the average annual exportation since 1898, the percentage of value of the total exports had fallen to 52.7 per cent. The shipments of 1907, which amounted to 112,895 tons, were invoiced at \$21,085,081, while the larger shipments of 114,005 tons in 1908 were valued at \$17,311,808.

Sugar, which is the second product of importance, both in value and tonnage, aided in sustaining the volume of trade by an increased exportation as well as proportionate value, over the quantity and value marketed during the preceding year. During 1908 the sugar exportations aggregated 149,323 tons, valued at \$5,664,666, an increase of 30,928 tons and \$1,730,206 in value over those of 1907, being the highest record in sugar transactions since 1898. Exportations of copra for 1908 aggregated 75,257 tons, invoiced at \$5,461,689, an increase in quantity of approximately 50 per cent. over the average yearly shipments, and a still greater increase over the year 1907, when 48,306 tons, valued at \$4,053,193, represented the foreign sales. Although the total exportations of tobacco showed a falling off in value from \$3,129,194 during 1907 to \$2,714,546 in 1908, they were still higher than in any previous year since American occupation. The decreased value in foreign sales was principally in the manufactured product, 6,868,179 pounds less having been shipped than in 1907, the total exportation being 23,264,901 pounds, valued at \$1,592,123. The comparative export figures for the years 1906, 1907 and 1908 are shown in the following table:

Articles	1906	1907	1908
Hemp	\$19,446,769	\$21,085,081	\$17,311,758
Sugar	4,863,865	3,934,460	5,664,666
Tobacco, and manufactures of.....	2,389,890	3,129,194	2,714,546
Copra	4,043,115	4,053,193	5,461,680
Miscellaneous	1,173,495	1,511,429	1,663,917
Total	\$31,917,134	\$33,713,357	\$32,816,567

The merchandise imported into the Philippine Islands during the fiscal year 1908 comprised manufactured articles and natural products from many and widely distributed sources throughout the world.

The following statistics cover the leading articles of import and the leading countries supplying them:

	1907	1908
Wheat flour:		
United States.....	\$ 370,271	\$ 507,235
Australasia	518,580	536,322
Cotton cloths:		
United States.....	1,016,036	533,693
United Kingdom.....	3,013,769	3,231,425
Switzerland	280,372	406,441
East India	530,687	532,526
Knit fabrics:		
United States.....	6,816	10,412
Germany	198,967	241,014
Spain	622,853	434,650
Yarn and thread:		
United States.....	2,144	5,024
United Kingdom.....	729,992	686,068
Switzerland	153,302	161,794
Japan	255,406	205,284
Boots and shoes:		
United States.....	221,018	338,929
Spain	59,000	86,391
Condensed milk:		
United States.....	92,838	96,710
United Kingdom.....	161,486	210,666
Illuminating oil:		
United States.....	551,699	619,545
Dutch Indies.....	198,808	144,213

The large quantity of cotton goods in addition to the general merchandise received from the United Kingdom places that country at the head of the list, while the value representing importations from the French East Indies is due almost entirely to the large amount of rice from Saigon. In addition to the classes of merchandise enumerated in the table above, manufactures of iron and steel were imported to the value of \$2,164,907 and 37 per cent. of this covered American manufactures as against 34 per cent. in 1907. Imports of miscellaneous machinery, exclusive of sewing machines and sugar machinery, aggregated in value \$433,803, of which \$290,598 represents American manufacture. The heaviest importation of any distinct classes of iron was that of sheets and plates, aggregating in value \$316,110 of which importations from the United Kingdom were represented by a value of \$206,214 and the United States by a value of \$96,411. The greater portion of importations of canned beef, bacon and salted and pickled pork during 1908 consisted of American products, although the chief sources of the supply of meats were Australia, China, and other neighboring countries. The importations of wheat flour during 1908 amounted to 256,066 barrels, which were invoiced at \$1,044,570. Practically all this flour was received either from Australia or the United States, 133,232 barrels having been imported from the former and 122,624 from the latter source. The invoice value of the bread stuffs, exclusive of flour imported, was \$263,396 as compared with a value of \$329,632 in 1907. Other important importations are the following: Malt liquors, valued at \$90,592; illuminating oil, \$806,112; boots and shoes, \$451,421; chemicals, drugs, and dyes, \$314,978; opium, \$143,670, a decrease over the importation of 1907 which was \$369,617. This decrease was due to the prohibition of the use of this drug except for medical purposes by an act of the Philippine Commission which became effective Mar. 1, 1908.

(See OPIUM.) The exports of coal in 1908 amounted to 213,958 tons, valued at \$547,220. Of this amount, 208,316 tons came from Australia. Importations of manufactures of paper in 1908 aggregated in value \$526,434 as against \$508,754 in 1907.

EDUCATION. Public educational work in the Philippines is performed under the Bureau of Education with a central office at Manila. This Bureau has 36 divisions, each in charge of a Division Superintendent, embracing in all 460 school districts each in charge of a supervising teacher. The total number of schools in operation during the fiscal year 1908 was as follows: Primary schools, 3701, an increase of 266 over 1907; secondary schools, 193, an increase of 31; art and trades schools, 35, an increase of 3; agricultural schools, 12, an increase of 7; domestic science schools, 30, an increase of 13; provincial high schools, 38, an increase of 2. The teaching force maintained directly by the Insular government is approximately 1572, of which 877 are American teachers and 695 Filipino Insular teachers. This is an increase of 51 American teachers and 240 Filipino teachers over the force so provided June 30, 1907. The total enrollment during the school year was 486,676 as compared with an enrollment of 479,978 in 1907. The average enrollment by months was 339,243 of whom 212,273 were boys and 126,970 were girls. The average daily attendance was 270,732. By act of the Philippine Commission the sum of 3,510,000 pesos was appropriated for current expenses of the Bureau of Education during the fiscal year 1908, and for the work of the fiscal year 1909, 3,300,000 pesos were appropriated. Up to Sept. 9, 1908, allotments for school construction work in the different provinces on the Islands had been made to the amount of 997,468.74 pesos. The total appropriation for this work was 1,000,000 pesos, leaving a balance on hand of 2,531.26 pesos. Of the sum appropriated, 330,275 was for provincial high school buildings, 279,628 pesos for intermediate schools, 224,612 pesos for schools of arts and trades, 69,500 pesos for agricultural schools, 64,200 pesos for schools of domestic science, and dormitories, 23,252 pesos for a school of fisheries and 6,000 pesos for a school of property. In 1908 there were constructed 432 school houses, and a total of 2696 school houses of all kinds have been constructed in the Islands since the creation of the present Board of Education. During the last two years there were either built or purchased by the government, 2 provincial high schools, 22 domestic science schools, 10 agricultural schools, 18 schools of arts and trades, 101 intermediate schools and 548 primary schools.

A plan of secondary instruction has been prepared by the Department of Education. This plan provides for a secondary course of six years duration, preceded by training in the ordinary elementary branches, equivalent to, although not necessarily identical with that given in the public primary and intermediate schools of the Islands, whose two courses, primary and intermediate, embrace seven grades, normally of one school year of 40 weeks for each grade. The minimum requirements of secondary instruction necessary to obtain governmental approval will not be less than four units for each year, making a maximum total of 24 units

for the six-year course. This plan is intended to apply to private schools.

School work among the non-Christian peoples of the Philippines, for the extension of which a special appropriation of 75,000 pesos was made in 1907, was continued throughout 1908 with decided success. Schools for the Negritos or Aetas of whom there are estimated to be from 25,000 to 30,000 have been opened in the Bukao river valley in the provinces of Zambales; in the Tarlac river valley; in the mountains back of Florida Blanca, province of Papanga, and in the provinces of Ambros Camarines and Antique. In these schools are taught reading, writing, knowledge of money values and simple business figuring. Schools have also been started among the primitive Malayan people among the Visayan Islands and Northern Mindanao. Industrial boarding schools and village primary schools have been established among the Igorots and other island people of Northern Luzon, of whom there are several hundred thousand. As fast as the native boys can be trained as teachers, village schools will be opened in the different communities. Similar schools were conducted in Igorot and Tinguan in the provinces of Ilocos Sur and Ilocos Norte. Among the subjects taught by the Igorots are basket making, truck gardening, pottery, blacksmithing, carpentry, cloth weaving and brass casting. The results obtained in these schools have been, on the whole, very satisfactory.

Substantial progress was made in the organization, equipment and operation of the Philippine medical school during 1908. A number of new instructors and demonstrators were appointed during the year. The total number of students in the school year 1908-9 was 67. From Sept. 1, 1907 to June 30, 1908, 10,869 patients visited the clinic and received treatment.

The appropriation bill for the Bureau of Education for 1908-9 provides for the maintenance in the United States for 130 Filipino students. Up to the end of the year 1908, 60 students had returned to the Islands upon the expiration of their term of appointment and all have received government appointments, 40 as teachers. During 1908-9 43 more are expected to return, four of them being young women. The first act of the Philippine Assembly and of the Philippine Legislature was to appropriate the sum of 1,000,000 pesos for the construction of public school buildings in the barrios or outlying hamlets of the Islands. See paragraph *Legislation*.

RAILROADS. Very satisfactory progress has been made in the construction of railroads during the year. Of track 269.5 kilometres (167.4 miles) were laid and 286.4 kilometres (177.9 miles) of line opened for business, and at the close of the fiscal year there were 689.8 kilometres (428.4 miles) of line in operation in the islands, as compared with 196 kilometres (121.7 miles) at the close of Spanish sovereignty, or over three and one-half times as much. There was laid 37.5 per cent. more track during the past year alone than was in existence in the islands when the Americans landed. Including sidings and second track there was a total of 841.9 kilometres (522.8 miles) at the close of the year.

The following table shows in kilometres the extent of line, not including sidings and second lines, the construction of which has been authorized by law, and the amount constructed:

	Authorized	Constructed, in operation	Constructed, not in operation	To be constructed
Manila Railroad Company...	1,100.0	473.3	33.1	593.6
Manila Electric Railroad and Light Company.....	45.0	39.8	....	5.2
Manila Suburban Railways Company	19.9	9.9	....	10.0
Tarlac Railway Company....	20.6	20.6	....	....
Daet Tramway Company.....	7.2	7.2	....	....
Philippine Railway Company	461.0	127.0	13.4	320.6
Insular Coal Company.....	12.0	12.0	....	....
Total	1,665.7	689.8	46.5	929.4

An act of the Philippine Commission created a board known as the "board of rate regulation," for the regulation of rates charged by public-service corporations. This board is composed of the Governor-General, the Secretary of Commerce and Police, and the supervising railway expert, and the powers given are in general similar to those conferred on the Interstate Commerce Commission by Congress.

POSTS AND TELEGRAPHS. At the end of the fiscal year 1908 there were 540 post offices in operation, an increase of 35, or nearly 7 per cent., over 1907. A free delivery municipal letter carrier service was established in 31 municipalities. At the close of the fiscal year there were 5389 accounts in the postal savings banks, as compared with 2331 at the beginning of the fiscal year. The amount of deposits in the bank on June 30, 1908, was 1,031,994 pesos, as compared with 509,463 pesos on June 30, 1907. Over 44 per cent. of the depositors are Filipinos. There were on June 30, 1908, 4898 kilometres of insular telegraph lines, 3468 kilometres of telephone lines, and 2176 kilometres of cables. The total length of the Insular telegraph, telephone, and cable lines at the close of the fiscal year was 10,542 kilometres (6546 miles), as compared with 7153 (4442 miles) at the close of 1907.

FINANCE. The revenues of the Philippine government, exclusive of all items of refundable character, were, for the fiscal year ended June 30, 1907, \$17,445,489.49. The revenues in 1908 for the same period were \$17,972,929.03. Of the revenues of 1907, \$11,149,619.25 were received from insular sources; \$4,604,528.31 from provincial sources; \$1,691,341.93 from the city of Manila. The expenditures for the fiscal year 1907 were \$14,704,852.44, as against \$16,974,262.67 for the fiscal year 1906. These expenditures were divided as follows: Insular, \$8,408,012.84; provincial, \$4,736,038.20; city of Manila, \$1,560,801.40. The total bonded indebtedness of the islands was, on June 30, 1907, \$13,500,000, divided as follows: Land purchase bonds, \$7,000,000; Philippine public improvement bonds, \$3,500,000; Manila sewer and water bonds, \$3,000,000. To meet the interest on the principal of these bonds, ample sinking funds have been provided, and the bonds are now held on the market at prices well above those for which they were originally sold. The Insular treasury's cash balance on June 30 1907, was \$25,033,490.93. Loans were made to the provinces during the year to the amount of \$481,137.55. The cost of the provincial government was \$1,132,743.62. The

Friars' Lands funds amounted to \$6,670,548.06. The question of taxation is an important one in the islands, and complaints have been made that interior taxation has increased under the American rule, and that the burdens of government by the Commission have been greater many times than those which were imposed by the previous régime. A comparative statement of taxes imposed by the Philippine Commission and by the Spanish government shows that less interior tax to the amount of \$746,000 was imposed by the Commission in 1906 than was imposed by the Spanish government in 1897, the respective figures being \$8,453,000 and \$9,199,000. It is true that the bankers, farmers, merchants, and capitalists paid much more in taxes under the American administration than was exacted from them by the Spanish rule, but on the other hand, a heavy burden of taxation has been taken from the poorer classes and those less able to bear the burden. Under the former the graded cedular tax was collected on men and women of full age, whereas since the transfer of sovereignty a tax of but 50 cents has been exacted, and that from men only. From this tax the Spanish government derived over \$4,000,000 annually, while less than \$900,000 has been received from the source under American rule. One million, two hundred and fifty thousand men were liable under Spanish laws for the prestacion personal tax of 15 days labor on public works. From this the government received not less than \$1,500,000 annually. This tax has been eliminated by the American government. On these two items alone the mass of the people have been relieved from the burden of taxation of more than \$4,500,000, all of which loss has been recouped from the imposition of the land tax and internal revenue tax, with the exception of \$746,000, which represents a fair gain of the people, taken as a whole. The Philippine government has been self-sustaining since its installation. The various governmental departments, including schools, scientific institutions, construction and maintenance of roads, and public buildings, the maintenance of a constabulary of the strength of 5000 or 6000 men, and other activities have been supported by the Philippine revenue. The expenses of those portions of the army and navy stationed in the islands have been met by the government of the United States.

BANKS AND BANKING. The total resources of the commercial banks in the Philippine Islands, exclusive of the Bank of Zamboanga, was, at the end of the fiscal year 1907, 34,104,715.30 pesos, as against 30,703,379.96 pesos in 1906. In accordance with an act passed by the Philippine Commission in 1906, a postal savings bank was established and began business on Oct. 1, 1906. On June 30, 1907, there were deposited in this bank funds to the amount of 490,000 pesos. The agricultural bank, which was authorized by Congress in 1907, was not established during that year, as no acceptable proposition was made by private capital for this enterprise. The Insular treasurer recommended that out of the general funds, \$1,000,000 be set apart for the Philippine Legislature for the founding of an agricultural bank, to be supervised, operated, and controlled by the Treasury Bureau.

HISTORY.

The most important political event of the fiscal year 1908 was the opening on Oct. 16, 1907, of the Philippine Legislature, which consists of the Philippine Commission as the Upper House

and the Philippine Assembly as the Lower House. There were three sessions held by the Legislature, the inaugural session from Oct. 16, 1907, to Feb. 1, 1908; the first session from Feb. 3, 1908, to March 21, 1908, and a special session from May 22, 1908, to June 19, 1908. Mention of the important measures passed by the Legislature will be found in the paragraph below.

On May 12, Congress authorized the increase of the Philippine Commission by one member, and empowered the President to appoint an additional secretary when, in his opinion, such a course was necessary to the interest of the service. On July 1, Hon. Gregorio Araneta, then Attorney-General of the Philippine Islands, was appointed Secretary of Finance and Justice to fill the vacancy caused in that office by the appointment of Hon. Henry C. Ide as Governor-General of the Philippine Islands, and Newton W. Gilbert, Judge at Large of the Court of the First Instance, was appointed a member of the Philippine Commission in the place of Benito Legardo, who resigned to become one of the Delegates to Congress. The additional position of member of the Commission, created by Congress, was filled by the appointment on July 6, 1908, of Hon. H. Rafael Palma, a lawyer and a member of the Philippine Assembly from the Province of Cavite.

CONGRESSIONAL LEGISLATION. By act of Congress approved April 29, 1908, the provisions for the application of the coastwise laws of the United States to the Philippine Islands was permanently suspended.

During the 60th session of Congress provision was made for the promotion of officers of scout companies to include the grade of captain.

Congress also authorized the designation by the Philippine Commission of one Filipino cadet for each class at the United States Military Academy. A bill with similar provisions, authorizing the appointment of five Filipinos to receive instructions at the United States Naval Academy was also introduced in Congress. It was referred to the Committee on Naval Affairs, but received no action.

By an act approved March 26, 1908, Congress appropriated \$403,030.19, payable to the representative of the Roman Catholic Church in the Philippine Islands, the Archbishop of Manila, as trustee, in full satisfaction of all claims arising out of the use of church property by the troops of the United States during and following the war with Spain and the Philippine insurrection. The claims presented amounted in total to \$2,442,963.13, and the award recommended by the board on church claims was \$363,030.19, with a further additional recommendation of a payment of \$40,000 for the spoliation and loss of sacred ornaments, images, and vestments, provided that Congress should, as a matter of equity, desire to render such compensation to the church.

By virtue of a provision in the Sundry Civil Act, Congress authorized and directed the Secretary of War to aid the people of the Philippine Islands in providing and maintaining an appropriate and creditable exhibit of the resources and products of those islands at the Alaska-Yukon-Pacific Exposition to be held at Seattle, Wash., in 1909, and for this purpose provided an appropriation not to exceed \$25,000.

LAWS PASSED BY THE PHILIPPINE LEGISLATURE. At the inaugural session of the Legislature the most important bill passed was one appropriating 1,000,000 pesos for the construction

of barrio schools. An act was passed providing that merchandise in bonds for customs duties may be withdrawn at any time for consumption, for transportation to another port, for exportation, or for delivery on board a vessel of the United States or foreign vessel, for use on board such vessel as ship's stores. Measures were passed cancelling laws made by the Insular government to certain provincial and municipal government prior to Oct. 15, 1907. An appropriation of 1,100,000 pesos was made to be expended, in the discretion of the Bureau of Agriculture, for the purpose of combating and exterminating animal diseases. The Governor-General was authorized to convey insular property to provinces and municipalities for public school purposes. The sum of 3,024,000 pesos was appropriated for public works and improvements. Provision was made for the construction of a capitol building, and a committee was created to prepare plans therefor. A Philippine public library was provided for, and suitable provision was made for its maintenance. The sum of 750,000 pesos annually was provided for the promotion, establishment, and maintenance of irrigation projects in the islands. The sum of 150,000 pesos was appropriated for the purchase and preparation of land for cattle quarantine stations in the cities of Manila, Cebu, and Iloilo. An employers' liability law was passed. Provision was made for the sale of unoccupied friar lands, and for the payment therefor in annual installments. A bill was passed providing for the establishment of a university in the Philippine Islands.

MOUNTAIN PROVINCE. Difficulties of the administration led to the recommendation of the establishment of a province to be known as the "Mountain Province," and to include as separate sub-provinces, each with its lieutenant-governor, Benguet, Amburayan, Lepanto, Bontoc, Kalinga, Apayao, and the Ifugao country of Nueva Vizcaya, the latter being coextensive with the former Spanish comandancia of Quiangan. It was further recommended that the capital of the province be at Bontoc, which has a cool and most healthful climate, and is the central point from which the main natural lines of communication radiate.

The Commission approved these recommendations and made them effective by act No. 1876, passed Aug. 18, 1908.

Under the new arrangement, with a lieutenant-governor constantly present in each sub-province, the governor will be free to go at once to any place where his assistance is needed or where he desires to investigate conditions. He will be able to establish and carry out a fixed policy throughout the entire extent of this great mountain region, which extends from the southern boundary of Benguet to the extreme northern end of Luzon, and will be sufficiently familiar with conditions in each sub-province, so that in the event of the death, resignation, or removal of a lieutenant-governor he can immediately assume control.

It is believed that this reorganization is the most important forward step yet made in establishing law and order and in bringing about a general improvement of conditions throughout the northern mountain region of Luzon.

CITY OF MANILA. By an act of the Philippine Legislature a change was made in the government of the city of Manila. The Advisory Board, which was composed of 13 members, one member being appointed by the governor-general from

each of the 13 districts of the city of Manila, was abolished. The municipal board was reorganized and is now composed of three appointive members, one *ex officio* member (the city engineer), and two elective members.

The installation of a sewer system so intimately connected with the sanitation of the city, is nearing completion. During 1908 24.4 miles of street sewers were laid, giving a total of 28.1 miles laid and leaving only 13.6 miles of the total contracted for. Pumps and pump houses have been contracted for; work on the latter has begun, and the entire system should be in working order before the close of the fiscal year ending June 30, 1909. Manila will then be the only city in the Orient having a complete water-carriage system for the disposal of its sewage.

OTHER EVENTS. The construction of the fortifications on Manila Bay were carried on during the year. Defenses were being erected on Corregidor, which will command the main ship channel into Manila Bay. A battery of 12-inch guns and 8-inch mortars will be located on a bluff, 600 feet above the sea level. Three other islands at the entrance to the Bay, El Fraile, Caribo, and Cabello, were also being fortified. On Sept. 24, great loss of life and property damage occurred through a typhoon which struck the middle part of the island. The disaster extended over the islands of Leyte, Panay, Masbate and Samar and for a time all cable communication was severed. The visit of the Atlantic Fleet to the Philippines will be found noted in the article UNITED STATES, section Navy.

OFFICERS: Governor-General, James F. Smith; Vice-Governor and Secretary of Commerce and Police, W. Cameron Forbes; Secretary of the Interior, Dean C. Worcester; Secretary of Finance and Justice, Gregorio Araneta; Secretary of Public Instruction, W. Morgan Shuster. Hon. Ignacio Villamor, judge of the sixth judicial district, was promoted on July 9th, 1908, to Attorney-General in the place of Hon. Gregorio Araneta who was appointed Commissioner and Secretary of Finance and Justice. Mr. George R. Harvey, Assistant Attorney-General, was appointed Solicitor-General.

PHILOLOGICAL ASSOCIATION, AMERICAN. A learned society organized in 1869, from the classical section of the Oriental Society. Its object is advancement and diffusion of philological knowledge. The Association held its annual meeting at Toronto, December 28-30. Many important papers were read. The annual president's address was delivered by Charles E. Bennett. The thirty-eighth annual volume of the *Transactions and Proceedings of the Association* was published in 1908. The Association has a membership of about 600. The president is Charles E. Bennett, and the secretary, Frank Gardner Moore. See PHILOLOGY.

PHILOLOGY, CLASSICAL. The present article, though concerned primarily with 1908, will occasionally take cognizance of work of an earlier time. Few new epoch-making books were published during the year. Some important books, however, were revised or made advance toward completion; much good work appeared in monographs and articles. Some important editions for school and college purposes appeared, but these lack of space compels us to pass in silence.

In the field of inscriptions we may note a new part of *Inscriptiones Græcæ*, with 520 inscriptions from Amorgos; the fifth part of *Inscriptiones Græcæ ad res Romanas pertinentes*, with inscriptions from Egypt; the third edition of H. Roehl's *Imagines Inscriptionum Græcarum Antiquissimarum*, and especially the first volume of W. Larfeld's *Handbuch der griechischen Epigraphik*, an indispensable work (volume 2 appeared in 1902), dealing with the history of Greek epigraphical study from ancient times to the present, with the material, execution, cost, interpretation, etc., of inscriptions, and with Greek alphabetical and numeral signs.

On Greek papyri the reader may consult F. G. Kenyon, *Greek Papyri and Recent Discoveries*, in the *Quarterly Review*. New fragments of Menander were published at Cairo, in November, 1907, as edited by G. Lefebvre. The manuscript, variously ascribed to the second or the late third century A.D., contains parts of four plays; of one about 500 verses survive, of each of two others about 350, of a fourth about 70. We thus have material for estimating Menander for ourselves. Numerous articles dealing with these fragments have already been published, e. g., by Leo in *Rheinisches Museum*, and E. Capps, *The Plot of Menander's Epitrepontes*, in *American Journal of Philology*. (See ARCHÆOLOGY.)

Volume 5 of the Oxyrhynchus Papyri contained 800 lines of a Greek historian (see below), besides important new fragments of Pindar. The 270 new verses of Pindar give parts of at least nine poems, some of which throw important light on the previously known poems of Pindar. The volume also reproduces a small, nearly complete, leaf of an uncanonical Gospel, which gives a discussion between Jesus and a chief priest in the temple at Jerusalem. In a complete vellum manuscript of the four Gospels, purchased in Cairo by Mr. C. L. Freer, of Detroit, of uncertain date, were found certain verses following Mark 16. 14; these verses, though mentioned by Jerome, had not previously been found in any extant manuscript of the Gospels.

Late in 1907 appeared a most important work, *Nomina Sacra*, by Professor Traube, of Munich. It discusses abbreviations of theological terms, such as *deus*, *dominus*, *Christus*, in pre-minuscule manuscripts. Forms such as *DO=deo*, *DNO=domino*, in which the final letter of the word is written with the initial letter, or with the initial letter of one or more syllables, Traube calls contractions. Contractions such as *DS=deus*, he says, were at first used as imitations of Greek contractions such as *ΘΣ=Θεός*, and were, besides, at first employed only when *deus* meant God in the Christian sense; the contraction was first used of a pagan god in the sixth century. If sound, this demonstration supplies important criteria for dating extant majuscule manuscripts or lost majuscule archetypes, and the book will be of prime importance to all students of text-criticism.

In the field of mythology and religion we must notice first the Congress for the History of Religions, held at Oxford in September; the papers read have been published in a volume of *Transactions*. A convenient account of the Congress will be found in the *New York Evening Post* for October 3. Professor Toutain published a new volume of his *Les Cultes Païens dans l'Empire Romain*; in this he protests

against the uncritical application of anthropological theories, especially the totemistic. J. Adam published *Gifford Lectures on the Religious Thinkers of Greece*, dealing especially with Pindar and Euripides. Mention may be made of Reinach's *Cultes, Mythes et Religions*, which treats many problems of Greek mythology and religion, especially the Aktaion story and the Prometheus myth; of a paper by Radet, entitled *Nike Volante*, in *Akademie des Inscriptions et Belles-Lettres*; of a lecture on Apollo, by Wilamowitz (Oxford Press); of H. L. Axtell's dissertation on *The Deification of Abstract Ideas in Roman Literature and Inscriptions*; of a paper by Frazer, on *St. George and the Parilia*, in *Revue des Études Ethnographiques et Sociologiques*, in which he argues that the object of both festivals was to protect the flocks against wolves and witches at the critical time when the herds are first driven out to pasture in the spring; of a paper by C. H. Moore, on *The Distribution of Oriental Cults in the Gauls and the Germanies*, in the *Transactions of the American Philological Association* for 1907; of J. W. Hewitt's *The Propitiation of Zeus*, in *Harvard Studies*, volume 19; and finally of two articles in the eleventh half-volume of Pauly-Wissowa's *Real-Encyclopädie*, the one by Keune on *Epona*, a deity of beasts of burden in the northern and western provinces of the Roman Empire, the other by Körte, on the Etruscans, which briefly discusses Etruscan religion. In Roscher's *Lexikon* there is an article on *Poseidon*.

As noted above, the publication of the fifth volume of the Oxyrhynchus Papyri has made accessible the text of the new Greek historian discovered in 1906. The 800 lines cover events of 396-394 B.C., and throw important light on the anti-Spartan coalition of that time and on the Bœotian confederation. Scholars have not reached agreement concerning the authorship of this fragment. Theopompus and Cratippus both have their champions. Most important are the concluding volumes of R. W. Macan's exhaustive edition of Herodotus; these deal with Books 7-9, and contain most elaborate discussions of the composition of these books (Macan believes that Herodotus composed them before the others) and of various questions connected with Xerxes's invasion of Greece, especially the battle of Salamis. Excavations at Sparta have shown that the peculiar discipline associated with the name of Lycurgus was of late origin, probably of the sixth century B.C., and so are held to prove that Lycurgus was not a historical personage. A. Solari, in *Ricerche Spartane*, deals with the navy and the ephorate at Sparta. Kromayer, *Die antiken Schlachtfelder in Griechenland*, volume 2, treats minutely the campaigns of various Greek kings against Rome; the author holds that these kings, though defeated, really handled their armies with much skill. We may note, finally, the article on *Ephorus*, in Pauly-Wissowa, *Myres, History of the Pelasgian Theory*, in the *Journal of Hellenic Studies*, Wilamowitz's lecture on *Greek Historical Writing* (Oxford Press), and J. B. Bury's *Ancient Greek Historians*, a series of lectures delivered at Harvard University, giving a survey of Greek historiography down to the first century, with special attention to Herodotus, Thucydides and Polybius. B. Modestov, in *Introduction* *

l'Histoire Romaine, has collected, criticized and arranged the facts and theories about the peoples of Italy from palæolithic days down to the coming of the Etruscans. The Etruscan question, too, is considered; Modestov holds that the Etruscans came from the East by sea, as old tradition declares. Körte, in the article in Pauly-Wissowa, already mentioned, had taken the same view. Pais's essays on the history of Magna Græcia and Greek Sicily, which emphasize the part those districts played in the early history of Rome, have been collected and translated from the Italian (Chicago University Press).

Of the first rank is T. Rice Holmes's exhaustive work on *Ancient Britain and the Invasions of Julius Cæsar*, whose aim is to tell the story of man's life in Britain from the earliest times down through the invasions of Cæsar. There is an elaborate account in the first five chapters of Britain in the prehistoric period; chapters six and seven discuss Cæsar's invasions; chapter eight sums up the results of those invasions. There are also elaborate notes and appendices, which treat, among other things, the ethnology of ancient Britain, the place of Cæsar's landing in Britain, and Portus Itius, whence Cæsar set sail (Holmes identifies this with Boulogne; he holds, also, that Cæsar landed in eastern Kent). The book is the product of enormous learning and profound industry; the chapters on the early archæology of Britain are especially valuable, as putting in intelligible form the results of study in fields which lie outside the range of most students.

A popular history of the Roman Empire, from 29 B.C. to 476 A.D., was prepared by H. Stuart-Jones. Four volumes of the English translation (six of the French translation) of Ferrero's *Greatness and Decline of Rome* have now been published; these carry the history from the death of Sulla through 22 B.C. Very various estimates of Ferrero's work have been expressed by reviewers. Some have declared that it supersedes that of Mommsen himself. On the whole, however, the first glamour of his work seems to be passing; it is felt by some at least that he carries altogether too far his application of his economic theories, based on a study of modern life, to the facts of Roman history, seeing analogies to modern things, movements and tendencies where in reality no such analogies are discoverable at all by one not obsessed by a predetermined theory. "Perhaps his book will stimulate interest, rather than advance, knowledge." A second volume of Mommsen's collected historical papers has appeared.

In the domain of grammar, we may note first a paper by Professors Oertel and Morris, *The Nature and Origin of Indo-European Inflection*, printed in *Harvard Studies*, volume 16; the authors protest against the method involved in the search for fundamental meanings of inflections, whether of nouns or of verbs, holding that originally inflections had only vague meanings or none at all; subjunctive and optative at the start were practically synonymous, and were only gradually adapted to express the meanings which we associate with them in the developed languages. Mention may be made also of Tenney Frank's *Semantics of Modal Construction*, in *Classical Philology*, volumes 2 and 3, of C. Mutzbauer's *Die Grundbedeutung des Konjunktiv und Optativ und ihre Entwicklung im Griechischen*, a valuable collection and analysis

of all the Homeric examples of the subjunctive and optative, of H. Richards's *Xenophon and Others*, which deals with various points of Greek syntax, of the revised edition of F. E. Thompson's *A Syntax of Attic Greek*, of Grandgent's *Introduction to Vulgar Latin*, which is of value to the Latinist in various ways, of the *Supplement-Band* to the *Historische Grammatik der Lateinischen Syntax*, by C. F. W. Müller, an elaborate discussion (165 large pages) of the *Syntax des Nominativs und Akkusativs im Lateinischen*, and of B. L. Gildersleeve's articles on *Stahl's Syntax of the Greek Verb*, in *The American Journal of Philology*, an elaborate review of J. M. Stahl's *Kritisch-Historische Syntax des Griechischen Verbums der Klassischen Zeit*, published in 1907.

The year saw the completion of the seventh edition of Krebs's *Antibarbarus der Lateinischen Sprache*, revised by J. H. Schmalz. Lodge's *Lexicon Plautinum* was advanced by the publication of part 5, pages 385-480, which carries the work into *ego*. Parts 11 and 12 of Olcott's *A Dictionary of the Latin Inscriptions*, carrying the work through *amo*, also appeared. In *Harvard Studies*, volume 19, W. H. P. Hatch studies certain Greek words.

In the field of metre and prosody special mention must be made of an article in the *Transactions of the American Philological Association* for 1907, by Professor Paul Shorey, entitled *The Choriambic Dimeter and the Rehabilitation of the Antispast*; it criticises the latest theories concerning Greek metres, advocated for example by Wilamowitz, and defends the school of Schmidt and Christ. In the *Cambridge Journal of Philology*, volume 30, W. R. Hardie shows that Vergil allows coincidence of verse-accent and word-accent far less often than Cicero, Catullus and Lucretius. J. W. White, in *Harvard Studies*, volume 18, discusses *Logædion Metre in Greek Comedy*; R. Radford, in *American Journal of Philology* for 1907, continued his important studies in Plautine metre.

Of books and articles relating to Greek and Latin literature we may mention first some bearing on Homer, as G. Finsler's *Homer*, the review of Homeric Study from 1881-1906 in *Bursian's Jahresbericht*, T. E. Agar's elaborate *Homericæ; Emendations and Elucidations of the Odyssey*, and T. W. Allen's text of the *Odyssey* in the Oxford Classical Texts. In the new edition of Pindar in the Teubner Texts the more important of the Oxyrhynchus fragments of Pindar (see above) are given. There were also elaborate editions of Æschylus (of the *Eumenides* by Verrall, of the *Seven Against Thebes* by Tucker). We may mention again here Macan's Herodotus, 7-9 (see above).

Other works to be named here are Burnet's *Early Greek Philosophy* (new edition), Mario V. Williams's *Six Essays on the Platonic Theory of Knowledge*, Mackail's *Virgil and Virgilianism*, in *Classical Review*, a study of the *Carmina Minora* attributed to Vergil, J. W. Beck's *Horaz-Studien*, H. Richards's *Xenophon and Others*, L. Laurand's *De Ciceronis Studiis Rhetoricis* and *Études sur le Style des Discours de Cicéron*, J. W. Clark's *Bibliography of Bentley*, A. Guthkelch's *The Battle of the Books*, by Jonathan Swift; with *Selections from the Literature of the Phalaris Controversy*, E. G. Sihler's *Testimonium Animæ*, essays dealing with the

spiritual elements in classical civilization, the second edition of Heinze's *Virgils Epische Technik*, Cichorius's *Untersuchungen zu Lucilius*, reviewed in part by C. Knapp, in *American Journal of Philology*, the second volume of Vahlen's collected writings (under the title *Opuscula Academica*), the first part of the fifth edition of Christ's *Geschichte der Griechischen Literatur*, G. Friedrich's elaborate edition of Catullus, the third and last volume of Wessner's edition of Donatus's commentary on Terence, and Van Leeuwen's *Prolegomena to Aristophanes*.

Zielinski's *Cicero im Wandel der Jahrhunderte* appeared in a new edition, greatly enlarged, J. W. Sandys's *History of Classical Scholarship* was completed by the publication of volumes 2 and 3; of these the second begins with Petrarch and ends with the close of the eighteenth century in Italy, France, England and the Netherlands, the third comprises the eighteenth century in Germany and the nineteenth century in Germany, the rest of Europe and the United States. Mention should be made here of Gudeman's *Grundriss der Geschichte der Klassischen Philologie*, which is an enlarged version of his *Outlines of the History of Classical Philology*, which had already passed through several editions.

Much activity was shown in the course of the year in the publication of translations of important Greek and Latin texts. We have space to mention only translations of the *Eumenides* and the *Prometheus* of Æschylus, by Headlam; of certain plays of Æschylus by A. S. Way, the translator of Euripides; of the *Frogs* of Aristophanes and the *Bacchæ* of Euripides, by Gilbert Murray; of Hesiod, by A. W. Mairs, and of Statius's *Silvæ*, by T. A. Slater. Frère's translations of the *Acharnians*, *Knights*, *Birds*, *Frogs* and *Peace* of Aristophanes have been reissued in a single volume. Aristotle's *De Anima* has been rendered and expounded by R. D. Hicks. Two more translations of Vergil have appeared, by J. Jackson and T. H. Williams. A good translation of Tacitus's *Minor Works*, by Fyfe, and the first two installments of a series of translations of Aristotle's works, by Messrs. Beare, Ross and Joachim, have also appeared. Calverley's translations of the *Idylls* of Theocritus and the *Eclogues* of Vergil have been reprinted in one volume; Seneca's tragedies were translated by F. J. Miller (Chicago University Press).

PHILOLOGY, MODERN. In this branch of linguistic science the year 1908 was marked by orderly progress along the lines already laid down, rather than by any noteworthy discoveries. The progress made may, therefore, be indicated by a list of the chief works upon the subject, including a few books which appeared in 1907, but too late in that year to be recorded in the last YEAR BOOK.

In the field of Germanic philology the most important work appeared in the closing days of the year—A. Torp and H. Falk's *Wortschatz der germanischen Spracheinheit* (Göttingen, 1909; the third part of the long-awaited second edition of the *Vergleichendes Wörterbuch der indogermanischen Sprachen* of A. Fick). This is practically the only publication of the period under discussion which deals with more than an individual language or dialect, and of it account must be taken for some years to come. In Gothic W. Streitberg has published the first

volume of a new edition of *Ulfilas* (Heidelberg, 1908; containing the Gothic and Greek texts, introduction, various readings, and a discussion of sources); and S. Feist issued the first part (*A-M*) of his *Etymologisches Wörterbuch der gotischen Sprache* (Halle, 1909; including the so-called "Crim Gothic"). The sole noteworthy addition to our knowledge of Old High German is J. Schatz's *Altbairische Grammatik* (Göttingen, 1907). In Modern German the first of the twelve parts of the fifth edition of F. L. K. Wiegand's *Deutsches Wörterbuch*, edited by K. v. Bahder, H. Hirt, and K. Kant, appeared (Giessen, 1907); and more special problems are discussed in H. Stöckel's *Deutsche Sprachlehre auf geschichtlicher Grundlage* (Bamberg, 1908) and W. Holzgraeffe's *Grammatisches Geschlecht der Fremdwörter und fremden Wörter im heutigen Sprachgebrauch* (Hamburg, 1908). German dialects have received generous attention in A. Gebhardt's *Grammatik der Nürnberger Mundart* (Leipzig, 1907), and F. Schwagmeyer's *Lautstand der Ravensbergischen Mundart von Hiddenhausen* (Berlin, 1908); while in dialect dictionaries K. Müller-Fraureuth issued the first part (*A-placken*) of his *Wörterbuch der obersächsischen und erzgebirgischen Mundarten* (Dresden, 1908); and the committee of the Verein für siebenbürgische Landeskunde published, under the editorship of A. Schullerus, the first part (*A-Ameise*) of a *Siebenbürgisch-sächsisches Wörterbuch* (Strassburg, 1908). Turning to the Scandinavian languages, mention should be made of H. Hermansson's *Bibliography of the Icelandic Sagas and Minor Tales* (Ithaca, 1908); and of G. Cederschiöld's smaller edition of the Icelandic *Clári Saga* (Halle, 1907; an abridgment of his critical edition of 1879). H. Falk and A. Torp have again collaborated in a *Norwegisch-dänisches etymologisches Wörterbuch*, of which the first part has appeared (Heidelberg, 1908); while J. Jakobsen has published the first part (*A-gopn*) of a similar work for the interesting dialect of the Shetland Islands, a mixture of Norse and Norman—*Etymologisk ordbog over der norrne sprog på Shetland* (Copenhagen, 1908). In the Dutch group the most noteworthy book is W. L. Van Helten's *Zur Lexicologie des Altostfriesischen* (Amsterdam, 1907).

For the study of the older period of English, J. and E. M. Wright have issued an *Old English Grammar* (London, 1908); J. W. Bright and R. L. Ramsay have edited *The West Saxon Psalms, being the Prose Portion of the "First Fifty," of the so-called Paris Psalter* (Boston, 1907), and H. Löhe has edited the Anglo-Saxon *Be Dômes Dæge* (Bonn, 1907). Special studies of this same period are contained in W. Schmidt's *Altenglische Dichtungen "Daniel" und "Azarias"* (Bonn, 1907), W. Klump's *Altenglische Handwerkeramen sachlich und sprachlich erläutert* (Heidelberg, 1908), and F. Rösener's *Französische Lehnwörter im Frühneuhochdeutschen* (Marburg, 1907). The sole noteworthy production on modern English is the first volume (phonology) of W. Horn's *Historische neuenglische Grammatik* (Strassburg, 1908).

Romance philology has received no comprehensive treatment during the time under consideration. In French, P. Plattner issued the fourth volume of his *Ausführliche Grammatik der französischen Sprache* (Freiburg, 1907), and

G. Körting his *Etymologisches Wörterbuch der französischen Sprache* (Paderborn, 1908). An interesting contribution to the scientific study of slang is contained in L. Sainéan's *L'Argot ancien* (1455-1850), dealing with the relations of French slang to the secret jargons of southern Europe and to modern slang (Paris, 1908). Perhaps the work of most general scope in French philology is the fourth series of A. Tobler's *Vermischte Beiträge zur französischen Grammatik* (Leipzig, 1908), while more special contributions form the themes of R. Schubert's *Probleme der historischen französischen Formenlehre* (part i., Berlin, 1907), W. Jurgensmann's *Französische Ortsadverba in pronominaler Verwendung* (Leipzig, 1907), I. Thiergen's *Lautliche und begriffliche Entwicklung der antik-mythologischen Namen in der französischen Sprache* (Pulsnitz, 1907), P. Fahrenkamp's *Syntax der substantivischen Interrogativpronomina qui, que, quoi imfranzösischen* (Göttingen, 1907), and H. Daub's *Entwicklung des französischen Infinitivausgangs (Vok. oder Konst.) stimmtonlos-er* (Keil, 1907). Old French is advanced by L. Wiese's new edition of K. Bartsch's *Chrestomathie de l'ancien français* (Leipzig, 1908), treating of the period from the eighth to the fifteenth century, and by R. L. G. Ritchie's *Recherches sur la syntaxe de la conjonction "que" dans l'ancien français* (Paris, 1907), while metrics receives attention in H. Chatelain's *Recherches sur le vers français au quinzième siècle* (Paris, 1908).

In the other Romance languages there has been a corresponding interest. Provençal is the theme of H. Herford's *Lateinische Proparoxytona im Altprovenzalischen* (Königsberg, 1907), and a contribution of distinct value is made in J. B. Cerlogne's *Dictionnaire du patois valdôtain* (Aosta, 1907). For Italian, O. Pianigiani has prepared his *Vocabolario etimologico della lingua italiana* (2 vols., Florence, 1907), and M. L. Wagner has studied the phonology of the Sardinian dialect spoken in the vicinity of Gennargentu, in his *Lautlehre der südsardischen Mundarten* (Halle, 1907). Spanish and Portuguese are each represented by one work dealing with the older period: A. Zauner's *Altspanisches Elementarbuch* (Heidelberg, 1908), and the second edition of J. L. de Vasconcellos's *Textos arcaicos* (Lisbon, 1908).

Slavic philology is represented only by G. Wiegand's *Bulgärische Grammatik* (Leipzig, 1907), and by the second volume of W. Vondrák's monumental *Vergleichende slavische Grammatik* (Göttingen, 1908). The study of Old Irish, in the Celtic group, receives a distinct gain in J. Vendryes's *Grammaire du vieil-irlandais* (Paris, 1908), while a knowledge of Middle Irish texts is advanced by the publication of V. H. Friedel and K. Meyer's *La Vision de Tondale (Tnúdgal)* (Paris, 1907), containing the French, Anglo-Norman and Irish versions, and by C. S. Boswell's translation of the Middle Irish *Fiss Adamnáin* under the title of *An Irish Precursor of Dante* (London, 1908). Outside the Indo-Germanic division of European languages Basque is studied by E. S. Dodgson in his *Leicurragan Verb* (London, 1907), treating of Jean Licarrague's Basque version of the New Testament, with special reference to the verb-forms on Matthew. And a *curiosum* of distorted linguistic imagination is presented by A.

E. Drake in his *Discoveries in Hebrew, Gaelic, Gothic, Anglo-Saxon, Latin, Basque and other Caucasian Languages* (Denver, 1908).

A word may also be added on the histories of the literatures here considered linguistically. In the second volume of his *Légendes épiques* (Paris, 1908), J. Bédier considers the cycles of Girard de Roussillon, the Conquest of Brittany by Charlemagne, Ogier of Denmark, and St. Faron of Meaux, and Raoul of Cambrai, and the literatures of Provence and Rumania are discussed respectively in E. Portal's *Letteratura provenzale: i moderni trovatori* (Milan, 1907), and in R. Lovera's *Letteratura rumena* (Milan, 1908).

PHILOSOPHICAL ASSOCIATION, AMERICAN. An association of professors of philosophy and others interested in philosophy, founded in 1902. It has as its object "the promotion of the interests of philosophy in all its branches, and more particularly the encouragement of original work among its members." The meetings of the association are held annually at the different universities, and are devoted to the reading and discussion of papers. The official annual proceedings of the association containing the address of the president and summaries of the papers and the discussions, are published in the *Philosophical Review*, and reprinted separately for distribution among the members. At the last meeting, which was held at the Johns Hopkins University in affiliation with the American Association for the Advancement of Science, the programme consisted of the presidential address by Professor Hugo Münsterberg, twenty papers, and a discussion on Realism and Idealism, in which five appointed speakers took the leading part. The officers of the association for the year 1909 are: President, Professor John Grier Hibben, of Princeton University; vice-president, Professor J. H. Tufts, of Chicago University; secretary and treasurer, Professor Frank Thilly, of Cornell University; members of the executive committee, Professors Ernest Albee, of Cornell University, Ralph Barton Perry, of Harvard University, Charles M. Bakewell, of Yale University; F. J. E. Woodbridge, of Columbia University, and the president, vice-president and secretary.

PHILOSOPHICAL SOCIETY AMERICAN. The first learned society formed on the American Continent, founded by Benjamin Franklin in 1743 "for the cultivation of useful knowledge and the advancement of liberal arts and sciences." The Society holds ordinary meetings on the first and third Fridays of each month from October to May, inclusive. It also holds each year in the month of April, a general meeting. The programme for the general meeting of 1908 included thirty-four papers by members from all parts of the United States. The papers presented to the Society are published, either in its *transactions* in quarto, or in its *proceedings* in octavo form. The Society awards two prizes, the Magellanic, a gold medal to the author of the best discovery of the most useful intervention relating to navigation, astronomy, or natural philosophy, and the Henry W. Phillips prize of \$2,000, which is awarded from time to time for the best essay in science and philosophy of jurisprudence. The officers of the society are as follows: President, William W. Keen; vice-presidents, William B. Scott, Simon Newcomb, and Albert A. Michelson; secretaries, I.

Minis Hayes, Arthur W. Goodspeed, James W. Holland, and Amos P. Brown.

PHILOSOPHY. Since the time of Kant philosophy has been deeply interested in the problems concerning the origin, nature, and limitations of knowledge. Whether following along the lines marked out by Hume or Kant or taking a middle ground, it has shown a preponderance and tendency toward some form of epistemological idealism. And though a large number of its devotees repudiated all attempts at reaching an adequate theory of the universe, those who did believe in the possibility of a metaphysics generally constructed idealistic systems upon their epistemological foundations. Modern thought, in other words, is written in an idealistic key, and, in the case of metaphysics, for the most part, in a monistic key. The supremacy of idealism, however, is now being attacked in all the leading countries, and the philosophical situation at present shows strong symptoms of reaction in favor of realism, dualism, pluralism, and pragmatism. Many articles and books are being written for and against the different tenets of idealism, and there is a wider and intenser interest in philosophical questions than has existed for a long time. The last two annual meetings of the American Philosophical Association, the one held at Cornell University in December, 1907, the other at the Johns Hopkins University, in 1908, gave considerable attention to the discussion of pragmatism, realism, and idealism. Characteristic expression has been given to the reactionary spirit in the volume of essays published in honor of Professor William James, of Harvard University, by his colleagues at Columbia University, *Essays Philosophical and Psychological*.

The writers betray an impatience with the past, a keen distrust of the older systems, and a strong desire to strike out for themselves into new fields. Perhaps the spirit of free enquiry has never been so intense in American philosophical circles as it is to-day. It is not strange, therefore, that in its eagerness to present "new truths" the new movement should offer much that is vague, indefinite, and inconsistent with its own claims. It can hardly be doubted that what usually happens will happen here; the period of excitement will be followed by a period of calm and profound study of the problems and the opposition between the two schools will become less marked as the things are seen in clearer perspective.

In France, where pragmatism found some enthusiastic support from the beginning, a number of books have recently appeared against it. *Le pragmatisme et ses diverses formes anglo-américaines*, by Marcel Hébert; *La philosophie moderne*, by Abel Rey; *Anti-pragmatisme*, by Adolph Schinz; and *Pragmatisme et modernisme*, by J. Bourdeau. Even in Germany, where the new movement had been almost entirely ignored, the views of James and Schiller are arousing lively discussion. Among the notable articles may be mentioned: "William James und der Pragmatismus," by R. Mueller-Freienfels, in the *Philosophische Wochenschrift*; "Pragmatismus," by W. Jerusalem, in the *Deutsche Literaturzeitung*; "Pragmatismus," by Th. Lorenz, in the *Deutsche Rundschau*; and "Der Pragmatismus," by Ludwig Stein, in the *Archiv für Systematische Philosophie*. At the last International Congress of Philosophy, held at Heidel-

berg in September, 1908, "no subject aroused so much interest as pragmatism," we are told; the topic having been introduced in a paper by Professor Royce on "The Nature of Truth in the Light of Recent Discussions," and a paper by Schiller, "Der rationalistische Wahrheitsbegriff."

In spite, however, of the opposition manifested against the traditional conceptions, the spirit of modern philosophy still remains essentially idealistic. A study of recent publications shows this. With the exception of Royce, American thinkers have thus far shown little inclination to construct systems, but even in the United States idealism has a large following. In Germany the influence of Kant is growing instead of declining. The Berlin Academy of Sciences is publishing a new critical edition of his works. The post-Kantian idealists are not only being carefully studied, but their views are being revived in modern form. New editions of some of Fichte's and Schelling's writings are appearing. Dr. Hermann Nohl has published *Hegel's Theologische Jugendschriften* from the manuscripts in the possession of the Royal Library at Berlin; Professor Adolph Lason has published a new edition of Hegel's *Phänomenologie des Geistes*; and Professor Bolland, of Leyden, is continuing his publication of Hegel's works in new editions with critical introductions. The Kuno Fischer *Festschrift, Die Philosophie im Beginn des zwanzigsten Jahrhunderts*, a second edition of which appeared in 1907, contains a number of able essays on Psychology, Ethics, Philosophy of Religion, Logic, Philosophy of Right, Philosophy of History, Aesthetics, Philosophy of Nature, and History of Philosophy, by Wundt, Bauch, Troeltsch, Windelband, Lask, Rickert, Groos, and Lipps, nearly all of which are written from the idealistic point of view. The second edition of the sixth volume of *Kultur der Gegenwart, Systematische Philosophie*, consisting of papers on the different mental sciences, the philosophy of nature, and metaphysics, by Dilthey, Riehl, Wundt, Ostwald, Ebbinghaus, Eucken, Paulsen, Muench and Lipps, is another evidence of the prevalence of idealistic thinking in Germany.

Mention may also be made of Ewald's *Kant's kritischer Idealismus als Grundlage der Erkenntnistheorie und Ethik*, of E. H. Schmitt's *Kritik der Philosophie vom Standpunkt der intuitiven Erkenntnis*, and of the second edition of Riehl's *Der philosophische Kriticismus*. And the appearance of the second edition of Edward Caird's masterly work, *The Critical Philosophy of Kant*, and of a book by Watson, *The Philosophy of Kant Explained*, shows that interest in the sage of Königsberg has not died out in England.

That the metaphysical craving, of which Schopenhauer speaks, has re-asserted itself in recent modern thought, and that it will be satisfied with nothing less than an idealistic system, may be seen from the essays contributed to *Systematische Philosophie*, by Wundt, Paulsen, and Eucken, and the brilliant paper of Lipps in the *Festschrift* on the philosophy of nature. Eucken, who received the Nobel prize in 1908, has been greatly influenced by Fichte; the books published by him in 1908 are *Der Sinn und Wert des Lebens* and the fourth edition of his well-known work, *Die Grundbegriffe der Gegenwart*, under the new title, *Geistige*

Strömungen der Gegenwart. An exposition of his views is presented to English readers in Gibson's *Rudolph Eucken's Philosophy of Life*. Hugo Münsterberg, of Harvard University, offers in his *Philosophie der Werte* a world-view based upon Kantian and Fichtean principles. In France the recent metaphysical books which have aroused the greatest interest and admiration are Bergson's *L'évolution créatrice*, which passed through three editions within less than a year, and Hamelin's *Essai sur les éléments principaux de la représentation*. Bergson, like Paulsen, Wundt, and Lipps, bases himself upon the facts of science, paying attention especially to the results of biology, and, like Münsterberg, teaches voluntarism. Hamelin follows Kant and Hegel in method and is rationalistic. But the two thinkers agree upon nearly all the fundamental points of philosophy in spite of their difference in methods; after all, they are both spiritualists and theists. In England, Belfort Bax, in his *The Roots of Reality* (1907), offers "suggestions for a philosophical reconstruction," opposes panlogism and absolutism, and advocates an idealistic monism. *The Metaphysics of Nature*, by Carveth Read, teaches a similar doctrine. To be noted in this connection are the translation of the works of Aristotle, published in England under the editorship of J. A. Smith and W. D. Ross, the tenth volume of the works of Descartes, published in France, and the works of Bruno published in Italy. A number of interesting books having an important bearing on the problems of metaphysics may also be mentioned here: Meyerson, *Identité et réalité*; Becher, *Philosophische Voraussetzungen der exakten Naturwissenschaften* (1907); Weinstein, *Die philosophischen Grundlagen der Wissenschaft* (1907); Rey, *La théorie de la physique chez les physiciens contemporains* (1907), and *L'énergétique et mécanisme au point de vue des conditions de la connaissance*; Manville, *Les découvertes modernes en physique*; Le Dantec, *Éléments de philosophie biologique*, which has been translated under the title, *The Nature and Origin of Life*. Of value to the philosopher are several books from the scientific camp. In the two volumes of his Gifford Lectures, *The Science and Philosophy of the Organism*, Hans Driesch continues his attack on the materialistic and mechanical interpretation of biological phenomena and espouses the cause of vitalism. Montgomery in his *Philosophical Problems in the Light of Vital Organization* (1907), opposes idealism, which he interprets in the subjective sense, and offers a realistic dualism as the solution of the world riddle. Carl Snyder has published the first volume of a work, *The World Machine, The First Phase: The Cosmic Mechanism*, of which the other volumes, *The Mechanism of Life* and *The Social Mechanism*, are to follow. The standpoint of the writer is naturalistic and positivistic: "what we call philosophy will be transformed or forgotten." Svante Arrhenius's *Das Werden der Welten* has been translated from the Swedish into German. The metaphysician will also be interested in Kellogg's *Darwinism To-Day* (1907), Poulton's *Essays on Evolution*, Paulin's *No Struggle for Existence; No Natural Selection*, and Steiner's *Die Lehre Darwin's in ihren letzten Folgen*.

Among the important works on logic and epistemology which have appeared in 1908, the following are to be noted: the second volume of

Baldwin's *Thoughts and Things*, bearing the title: *Experimental Logic or Genetic Theory of Thought*; a new edition of the third volume of Wundt's *Logik*; Gibson's *The Problem of Logic*; Jonas Cohn's *Voraussetzungen und Ziele des Erkennens*; Baumann's *Der Wissensbegriff*; Kreibitz's *Die intellektuellen Funktionen*; Nelson's *Über das sogenannte Erkenntnisproblem*; *De la méthode dans les sciences* (a series of essays by a number of French scholars); and Carus's *The Foundations of Mathematics*.

In the field of ethics a number of useful works has been added to the literature. Royce's *The Philosophy of Loyalty*, and Leclère's *La morale rationnelle dans ses relations avec la philosophie générale*, show the influence of post-Kantian idealistic philosophy. To the same school belongs Renouvier's *Science de la morale*, 2 vols., which has appeared in a new edition. Rashdall, in his *The Theory of Good and Evil*, 2 vols. (1907), offers a synthesis of Green and Sidgwick, of English idealism and English empiricism. Fouillée, the well-known French philosopher, constructs a scientific system of ethics upon his theory of *idées-forces*. There are immanent laws of experience, both individual and social, which determine human conduct, and these laws are also immanent ends or ideals of human nature. Moral altruism is based upon intellectual altruism. In an ideal moral order personality would be completely social and society completely personal.

In the *Ethics* of Dewey and Tufts we have an attempt to utilize the results of comparative and genetic ethics in the treatment of the moral problem. The first part of the book traces the development of morality from primitive group morality to self-conscious, reflective morality. The second part, written by Dewey, analyzes conduct on its inner personal side, and seeks to discover the principles underlying moral judgments and moral conduct. "The problem of morality is the foundation, out of the body of original instinctive impulses which compose the natural self, of a voluntary self in which socialized desires and affections are dominant, and in which the last and controlling principle of deliberation is the love of the objects which will make this transformation possible." The third part studies conduct as action in society, applying the principles of morality to modern political, economic, and domestic problems. (In connection with this phase of ethics mention may be made of a new book by Royce, *Race Questions, Provincialism and other American Problems*). The second volume of Westermarck's *The Origin and Development of the Moral Ideas*, which came out last year, will be of great service to students of genetic ethics. Worthy of notice here are a monograph by Sharp, *A Study of the Influence of Custom on the Moral Judgment*, and Sumner's *Folkways*. The question of moral training, which has been agitated in the different countries for many years, receives comprehensive treatment in the two volumes edited by M. E. Sadler, *Moral Training and Instruction in Schools, Report of an International Inquiry*, "a veritable thesaurus," as a reviewer says, "from which writers on this subject will draw materials for many years to come." Other books on ethics are: the translation of Nietzsche's *Beyond Good and Evil*, by Helen Zimmern; Sarlo and Calò, *Principi di scienza etica*; de Roussaux, *L'éthique*; Bayet, *L'idée du bien*; Aaars, *Gut*

und Böse (1907); De Lanessan, *La morale naturelle*; de Gaultier, *L'idéal moderne and La dépendance de la morale* (1907); Le Dantec, *Science et Conscience*; Becher, *Grundfrage der Ethik*; Spir, *Moralität and Religion*; Vecchio, *Il sentimento giuridico*; Vidari, *L'individualismo nelle dottrine morali del secolo XIX*; Bennett, *The Ethical Aspect of Evolution*; Murray, *A History of Christian Ethics*; the second edition of Jodl's *Geschichte der Ethik*. The first volume of the *Encyclopedia of Religion and Ethics*, edited by Dr. James Hastings, contains many articles on ethical subjects. The students of ethics will also be interested in: Draghicesco, *Le problème de la conscience*; Van Bruysell, *La vie sociale et ses évolutions*; Goldscheid, *Entwicklungstheorie*, *Entwicklungsökonomie*, *Menschenökonomie*; de Roberty, *Sociologie de l'action*; Simmel, *Sociologie*; Ross, *Sin and Society and Social Psychology*; McDougall, *An Introduction to Social Psychology*; Picard, *La philosophie sociale de Renouvier*; Crasset, *La responsabilité des criminels*; Sighele, *Littérature et criminalité*. Recent publications in the field of religion are: Eucken, *Hauptprobleme der Religionsphilosophie* (1907); Watson, *The Philosophical Basis of Religion*; Pigou, *The Problem of Theism and Other Essays*; Mitchell, *Talks on Religion*; Adam, *The Religious Teachers of Greece*; Prezzolini, *Il cattolismo rosso*; Ossip-Lourie, *Croyance religieuse et croyance intellectuelle*; Pratt, *The Psychology of Religious Belief* (1907); D'Allones, *Psychologie d'une religion*; Delacroix, *Études d'histoire et de psychologie du mysticisme*; Cutten, *The Psychological Standards of Christianity*; Réclus, *Les croyances populaires*.

The history of philosophy is treated in the following new books: Vorlaender, *Geschichte der Philosophie*, 2nd ed.; Hannequin, *Études d'histoire des sciences et d'histoire de la philosophie*, 2 vols.; Berthelot, *Évolutionisme et platonisme*; Richter, *Der Skepticismus in der Philosophie und seine Ueberwindung*, volume ii.; Duessen, *Allgemeine Geschichte der Philosophie*, volume iii.; *Die Nachvedische Philosophie der Inder*; 14th and 15th numbers of Gomperz, *Griechische Denker*; Adamson, *The Development of Greek Philosophy*, ed. by Sorley; new edition of Diels, *Fragmente der Vor-Sokratiker*; Burnet, *Early Greek Philosophy*, 2nd ed.; Robin, *La théorie platonicienne*; Barth, *Die Stoa*, 2nd ed.; Picavet, *Esquisse d'une histoire générale et comparée des philosophies médiévales*; translation of De Wulf, *Scholasticism Old and New*; Rousselot, *L'intellectualisme de Saint Thomas*; Neumark, *Geschichte der jüdischen Philosophie des Mittelalters*; Bauch, *Geschichte der neuern Philosophie bis Kant*; Höfding, *Lehrbuch der neuern Philosophie* (1907); Brett, *The Philosophy of Gassendi*; Jungmann, *René Descartes*; Erhard, *Die Philosophie des Spinoza*; Wenzel, *Die Weltanschauung Spinoza's* (1907); Bloch, *La philosophie de Newton*; Schmid, *F. H. Jacobi*; Dugard, *Emerson*; Th. Ziegler, *D. F. Strauss*; Haeberlin, *Spencer's Grundlagen der Philosophie*; Richert, *Schopenhauer*; Boutroux, *Science et religion dans la philosophie contemporaine*; Stein, *Philosophische Strömungen der Gegenwart*; Eisler's *Philosophisches Wörterbuch*, which has just appeared in a new edition. The September number (1908) of the *Revue de Métaphysique et de Morale* is devoted to study of contemporary philosophy outside of France, J.

Benrubi writing on Germany; J. S. Mackenzie, on England; Frank Thilly, on the United States; G. Amendola, on Italy; H. Höfding, on Scandinavia; and F. G. Calderon, on South America. The November number contains an article by E. Boutroux on contemporary philosophy in France.

PHOSPHATE DEPOSITS. See FERTILIZERS.

PHOTOTHERAPY. The use of various forms of light radiation in the treatment of disease was widely practiced during 1908, and with more definite knowledge of their value and limitations. Many methods were tried. Solar light may be simply concentrated or it may be split up and the various colors of the spectrum utilized, as e. g. the violet rays; or it may be projected through colored glasses. Radium emanations and the Röntgen rays were also extensively employed. The government mines in the northern part of Austria are the principal source of radium, although even here only minute quantities of this curious element are produced. The Vienna Academy of Science recently received from the Minister of the Interior 4.5 grains of pure radium bromide. This was looked upon as a large amount. A radium institute was assured in Vienna for the study of the chemical, physical, medical, and physiologic action of the element. Experiments were carried on in Joachimsthal, where the ore is found, and in Vienna, to ascertain whether water charged with radium emanations has any medical virtue. The ingestion of such water was found to be followed by definite improvement in rheumatic and arthritic cases. In practice the radium salt is placed in a capsule or tube, and held near, or in contact, or even imbedded in the growth designed to be influenced; the time of exposure being regulated by the dosage desired. No pain is caused and no sensation except that of physical contact is felt. Radium was used by Williams, in lupus erythematosus, lupus vulgaris, trachoma, psoriasis, acne, eczema, keloid, tuberculosis, dactylitis, vernal catarrh, chronic ulcer of the leg, warts, rodent ulcer, and epithelioma, the best results being obtained in epithelioma. The writer believed that radium radiations were more uniform in quantity and quality than the X-rays, and, therefore, safer and more efficient than the latter, which are employed in the same class of disease.

PHYSICS. The year 1908 was not remarkable in the progress of physics for events, like the discovery of the X-rays or of radioactivity, that open up a whole new and fertile field of experiment and theory, and attract a wide popular interest for a time; yet steady and gratifying progress was made in extending our knowledge of facts, and directing the growth of the theories by which the facts are best to be correlated. Naturally the most interesting advances have been made in the newer regions of the field of physics, notably those of radioactivity and the electron theory, though the latter is now found approachable in so many ways that its boundaries cannot easily be specified.

THE RELATIVITY THEORY. In theoretical physics the further development of the so-called 'relativity principle' has occupied a prominent place in the attention of physicists. Broadly stated, this principle, or rather postulate, denies that absolute motion, or even motion with respect to an ether that pervades space, is a conception

of any value or meaning; holding that the only motion of which we can become cognizant is the motion of one portion of *matter* with reference to another portion of *matter*. The theory had its origin in the fact that experimenters have long sought, but in vain, to detect some effect, on optical or electrical phenomena, arising from the fact that the earth has a rapid motion in its orbit, and so must be in rapid motion with respect to the ether, which is postulated as the medium in which light-waves and electrical fields exist, unless, indeed, the earth carries along with it at least the ether in its immediate neighborhood. The latter hypothesis seems for several reasons untenable. A 'relativity' theory begins with a postulate in full accord with the negative results of all such attempts to detect the motion of the earth through the ether, namely: If all parts of an optical, electrical, or other system are moving with the same velocity with reference to any axes of reference, the phenomena in the system are not influenced at all by this common velocity. That is, again, that only relative motions between portions of matter can have any influence on phenomena associated with them. For example, an observer on the swiftest comet, supplied with the most accurate apparatus imaginable, could not discover his motion without making use of light, gravitation, or some other influence coming from the sun or some other body outside the comet.

Relativity theories have taken several somewhat different forms, the Lorentz-Einstein form, for which Lorentz laid a basis as far back as 1894, being the best developed. As treated by Einstein, in a paper published early in 1908, summarizing the progress of the theory, it involves as an additional postulate the constancy of the velocity of light as measured in systems with any relative velocities. Abraham has shown, however, that this is not a necessary postulate for a consistent relativity theory. One of the immediate and most remarkable conclusions of the Lorentz-Einstein theory is that time itself is a relative quantity, depending on position. The difficulty of such a conception of time is certainly a weighty objection to the theory. That a body changes its dimensions, shortening in the direction of motion, as its velocity increases, was a hypothesis offered by Fitzgerald and by Lorentz several years ago to explain the negative results of motion through the ether experiments, and is also a consequence of the relativity theory. The application of the equations of the electro-magnetic field is simplified, since it follows directly from the theory that their form is not affected by any common velocity of all parts of the system under consideration; but the equations of ordinary mechanics have to be given a special form, allowing for a dependence of mass on velocity, if they are to hold for the action between bodies having relative velocities at all comparable with that of light; which indeed follows from any electronic theory of matter, because the electro-magnetic mass of any electric charge increases with the velocity, approaching infinity as the velocity nears that of light. The mass or inertia of a body depends on its content of energy, kinetic or potential: thus a hot body has a very slightly greater mass than the same body cold. Two pieces of matter cannot have a relative velocity greater than that of light; gravitational force cannot be propa-

gated with a greater speed than light, a conclusion that does not seriously conflict with the statement of Laplace to the contrary, since this theory introduces other elements than the limitation of the velocity of gravitation. Physicists do not by any means accept the relativity theory as they do for example the electro-magnetic theory of light, but it is being rapidly developed and extended in its applications. So far, it may safely be said, it has not been shown to be inconsistent within itself, nor at variance with any observed facts. Planck has shown that a relativity postulate furnishes an effective method of handling several problems in the thermo-dynamics of radiation. Minkowski has given a very general mathematical treatment of the relativity postulate.

THE ELECTRON. Of direct bearing on relativity theories is the important experimental work of Bucherer on the relation between the electro-magnetic mass of an electron and its velocity relative to the apparatus used. One of the main objections to the Lorentz-Einstein relativity theory had been that experiments of Kaufmann on this subject (See 1907 YEAR BOOK) had given results at too great variance with the demands of this theory to be overlooked. In determining the ratio of the value of the electric charge on the electron to the mass carrying it, he showed that the value of the ratio decreased as the velocity of the motion of the electron increases. Using a method of better design in some respects than Kaufmann, Bucherer got experimental results that led him to renounce definitely a relativity theory that he had himself put forward, but which fits very closely the equations for the relation between mass and velocity as given by the Lorentz-Einstein theory. For the value of the ratio of the charge to the mass of the electron at slow speeds, Bucherer's result 1.73×10^7 E. M. U. is somewhat smaller than the generally accepted value.

RADIOACTIVITY. Rutherford and Geiger have succeeded in counting the number of α particles given off by radium per gram per second. To do this they have taken advantage of the fact that if the difference of potential between two electrodes in air at reduced pressure be a little below that required to cause a spark to pass, the flight of a single α particle through the gas between the electrodes starts up ionization enough to be easily detectable, even demonstrable to an audience, by means of the current set up between the two electrodes. An electrometer connected to one of the electrodes gives a sudden deflection at the entrance of each α particle. The direct ionization caused by a single particle is not enough to detect, but it is magnified thousands of times through the ionization by collision set up in the strong field between the electrodes. By having a small hole of known size, covered only by a diaphragm so thin that the α particles can go through it, in the vessel containing the electrodes, the radium a known distance away, the air being exhausted from the space between to prevent absorption of the α rays, and counting by the electrometer jerks the number of particles coming through the hole in a time long enough to give a fair average rate, the data are at hand for determining the number of α particles given off in a second by the radioactive substance used. From the amount of radium-C that is in radioactive equilibrium with one gram of radium there are

thirty-four thousand million α particles shot off per second. From a gram of radium itself comes the same number; from a gram of radium in equilibrium with all its disintegration products come four times that number. Aside from the definite information it gives us concerning the α rays from radium, this success in making evident and measuring an effect produced by a single atomic particle is noteworthy as giving greater objectiveness to the atomic view of matter. Regener counted the number of α particles given off by polonium by counting the number of scintillations on a zinc sulphide screen, as in a Crookes spintharoscope, placed far enough away to reduce the number of scintillations occurring in the field of observation, to only one or two a second. There was much doubt that every α particle produces a scintillation. By counting the particles from radium by this method, and comparing with their number as obtained by the electrical method, Rutherford and Geiger showing that practically every α particle does produce a scintillation when it strikes the fluorescent zinc sulphide.

It had been known that the α particle has either a mass the same as that of a helium atom and a charge equal to twice the elementary charge of a univalent ion, or else a mass half that of the helium atom and a single elementary charge. The former seemed probable, as it would at once allow an easy explanation of the origin of helium from radioactive disintegration. The experiments of Rutherford and Geiger were carried further to furnish a proof of this. The total charge carried by the α particles from a gram of radium in a second, which was measured by a well known method, divided by the number of α particles, gives the charge on one α particle, which turns out to be two elementary charges, or the same as the charge on a bivalent ion, so that it appears altogether likely that the α particle is a helium atom, lacking the two electrons which it afterwards picks up to make the neutral or uncharged atom. If the instant of disintegration of an atom in a mass of radioactive matter is determined only by conditions inside the atom itself, and not at all by outside influences, the distribution in time of the α particles given off ought to follow the distribution as given by the law of probability, and such Rutherford and Geiger found to be the case. When the number of particles per minute was small they followed each other at quite irregular intervals.

Rutherford and Royds have made use of 250 milligrams of radium loaned by the Vienna Academy of Sciences to measure the volume of the radium emanation. Making use of the methods of handling extremely small quantities of gases as developed by Ramsay and Travers, they were able to isolate and purify the emanation from this amount of radium. As measured, the amount of emanation that is in radioactive equilibrium with one gram of radium is .58 to .66 c. c., though peculiar variations in the volume go on that are not yet satisfactorily explained. The volume expected from indirect calculations was .57 c. c. In addition to getting the volume of the emanation, the same physicists have measured the wave lengths of the lines of the spectrum of the emanation with precision. They remark that none of the lines are found in any of the stellar spectra.

Cameron and Ramsay announced during 1908 that the disintegration of radium emanation in the presence of water evolves the rare gas neon, whereas the disintegration of the dry emanation gives only helium. In the presence of copper they claimed that argon was generated. This apparent example of transmutation, or directing at will of a transformation to produce any one of three elements, attracted considerable attention for a while; but as to neon, later work by Rutherford proved that the neon, which is a constituent of the atmosphere, came from air dissolved in the water used.

Boltwood has published more information concerning ionium, the parent of radium. This substance is present in uranium ores, notably pitchblende, in three-fourths as large an amount, measured by its radioactivity, as radium itself, though it had not been discovered until Boltwood first announced and named it near the end of 1907, when its discovery at once received confirmation from Hahn. In its chemical nature ionium is closely allied to thorium. It emits α rays that have a range in air of 2.8 cm., and also β rays. Its rate of disintegration is not known, but it is very slow. In connection with ionium Boltwood estimates anew the period of decay to half for radium as 2,000 years. The existence of a parent of radium, intermediate between it and uranium, had been foretold by Rutherford. See 1907 YEAR BOOK.

A new member of the thorium family has been discovered by O. Hahn, who has split up the mesothorium previously discovered by him into two substances. He proposes a new nomenclature for the first few members of the thorium family so they will run as follows:—Thorium (α rays); thorium 2 (1 rayless, decays to half in $5\frac{1}{2}$ years); thorium 2 (β rays, decays to half in 6.2 hours); thorium 3 (radio-thorium, α rays, decays to half in 2 years). Hahn and Meitner have also discovered a new actinium product AcC, which emits β and γ rays, and decays to half in 5.1 minutes.

The question of whether the rate of radioactive disintegration is changed by a high temperature of the active substance was under investigation again, by Engler, who concluded that high temperature accelerated radioactive change in the case of radium, and by Schmidt, who concluded that in the case of RaC temperature, up to 1,300 C, had no effect on the rate of decay. Engler's work was with the more easily absorbable rays, Schmidt's with the X rays. The question was hardly considered definitely answered.

Eve has made measurements extending over a year, of the quantity of radium emanation per cubic meter in the atmosphere at Montreal. He has stated the amount of emanation in terms of the amount of radium required to continuously produce it, and finds that 60×10^{-13} gram of radium would be in radioactive equilibrium with the average amount of emanation in a cubic metre of the atmosphere. The maximum amount of emanation was seven times the minimum amount, as it varies greatly with weather conditions.

RÖNTGEN RAYS. Röntgen rays have come up mainly in two ways. First, as to the velocity, which Marx thought he had measured and concluded was the same as that of light (see 1907 YEAR BOOK). Pohl and Planck have shown that Marx's method involved errors; and so the

velocity of the X rays is still not experimentally determined. Secondly, as to the nature of X rays and the γ rays from radium, Bragg has been strongly supporting the view that the radiation is corpuscular, the corpuscles being electrically neutral, basing his reasoning on interpretations of the facts as to the way in which Röntgen rays are scattered in going through matter—corpuscular radiation and wave radiation would not be scattered in the same way. Barkla and others strongly opposed Bragg, upholding the ether pulse theory of the rays. W. Wien made a new estimation from an extension of Planck's theory of radiation, of the wave length, or pulse length, of X rays, and gives it as about 6.7×10^{-9} cm.

LIGHT AND RADIATION. Wood continued his valuable work on the optical properties of sodium vapor. Finding that the direction of magnetic rotation of the plane of polarization of some of the spectrum lines of sodium is opposite to that of the D lines, he suggested that the emission of the light of that wave length might be due to the motion of a positive electron. J. Becquerel also found evidence of positive electrons from examination of the spectrum lines of yttrium, one group of lines showing the Zeeman effect in the usual sense, explainable as the magnetic effect on the negative electrons in the radiating atoms, the other group showing it in an inverse sense, which may be attributed to the magnetic effect on positively charged particles in the atoms. As a step toward a better understanding of the little understood rôle of the positive electricity in an atom, such phenomena are of much interest. Wood has also shown that when polarized light is sent into sodium vapor, the fluorescent light from the vapor in a direction at right angles with the ray of incident light is in turn partly, about 30 per cent., polarized. Previous attempts to detect polarization had given negative results. Wood claims that the radial polarization of the solar coronal light is due to the fluorescence of the cloud of mixed metallic vapors under the intense radiation from the sun.

That the velocity of light in interstellar space is independent of its wave length has long been accepted without question, but Nordman attempted an exact study of the light from some of the variable stars with respect to the time of photometric maxima of different parts of the spectrum, and found that the red part of the spectrum from Algol, for example, reaches its maximum 16 minutes in advance of rays at the other end of the spectrum, with a probable error of ± 3 minutes. Assuming Algol to be 60 light years away, this would mean a difference in velocity between the waves at the two ends of the spectrum of one part in about ten million. Tikhoff, at Pulkowa, made similar observations, and confirms the results of Nordman's work. Lebedew, on the contrary, without questioning the observations criticised any such conclusion as Nordman drew, suggesting that the observed difference in phase of the red and the blue light from the variable stars in question might be explained by a lack of symmetry in the atmosphere of the satellite, which, passing in front of the star, causes the variation in its luminosity. A medium that would give the dispersion claimed by Nordman would, if acting like an ordinary gaseous medium, completely absorb all the light, so that we could not see the variable star at all,

nor even our sun, while to hold that there is such dispersion in the ether itself is too much at variance with all our electro-magnetic theories.

Buisson and Fabry have been engaged in re-measurement, by the most exact interferometre methods, of a series of 115 lines, mainly in the iron spectrum, to serve as spectroscopic standards. As the primary standard they have taken a red cadmium line, of wave length known in terms of the standard meter from Michelson's measurements, as adopted by the International Congress of Physics, and have now published accurate values for the wave lengths of these 115 lines, which come at small distances apart through the spectrum, thus furnishing spectroscopists a valuable set of standards.

MAGNETIC FIELD OF SUN SPOTS. From the standpoint of physics, as well as from that of astronomy, the discoveries of Hale, in connection with sun-spots, were among the most interesting of the year. It has long been known that there was a connection between sun-spots and magnetic storms on the earth, but the nature of the magnetic disturbance originating on the sun was not understood. Now Hale proved from evidence collected on the spot, so to speak, that there exists a strong magnetic field in the sun-spot. The cyclonic nature of the sun-spot was known, and was, in fact, completely confirmed during the year by Hale himself in a series of remarkable spectrophotographs; if, then, there happened to be an excess of negative or positive ions in the rotating gas of such a solar vortex, it would give rise to a magnetic field along the axis of the vortex. Reasoning that if such is the case, the light coming out along the axis of the spot, that is, along the magnetic lines of force, ought to show the Zeeman effect, or a doubling of its spectrum lines, with the two components circularly and oppositely polarized. Hale took photographs of the spots, using suitable apparatus, a Fresnel rhomb and a Nicol prism, for determining the polarization of the light. His photographs show clearly the doubling of a red iron line. Commenting on the noteworthy observations of Hale, Zeeman agreed that the evidence of a strong magnetic field along the axis of the sun-spot vortex was decisive, as such a field was the only known means by which a spectrum line would be doubled into such certain circularly polarized components. Zeeman computed that the field required for the observed separation, .22 Ångström unit, is about 6,000 gauss. Zeeman also discussed the density of charge, or concentration of electrons, in the rotating gas of the sunspot vortex necessary to produce a field of this magnitude, and found that it was not excessive as compared to the concentration of electrons in the cathode stream in a Wehnelt tube. Satisfactory explanations of why any such segregation of electric charges should exist in a sun-spot were not offered during the year, unless it was one suggested by Nichols, that the positive and negative ions are separated by the action of centrifugal force in the rotating mass. See article *ASTRONOMY*, section on *The Sun*.

POSITIVE RAYS. The positive rays, or streams of positive particles, in vacuum discharge tubes have been the subject of extended investigations by J. J. Thomson and W. Wein, whose conclusions are in substantial accord, though both of them find the phenomena very complicated.

Thomson finds that there are positive rays moving toward the anode, or against the electric field, in addition to the well-known canal rays from the anode moving toward the cathode. He seeks to explain this apparent anomaly by supposing that each of the particles which compose this retrograde stream, and which are certainly positively charged through part of their path, really starts from the cathode with a negative charge, which it keeps until the repulsion of the cathode has given it a high velocity. Moving with this high speed, approximately the same as that of the regular canal ray particles, of the order of a hundredth, the speed of light, it is subject to ionization by collision, which may remove not only the excess negative electron it bore to start with, but also a second one, leaving it positively charged, without any appreciable effect on its velocity since its mass is very large compared to that of an electron. The presence of some negatively charged particles of the same mass as the positive particles, about the same as that of a hydrogen atom, among these retrograde particles from the cathode, seems to confirm this view, as they may be considered particles that have not happened to lose their negative charges by collisions or that have picked up an excess electron again. Wein takes the view that even the particles in the regular anode or canal rays are not positively charged all the time, but in their flight are continually picking up or dropping electrons through collisions, for the magnetic deflection of some of the canal rays is not as great as it would be if the particles were constantly charged. Furthermore, Wein finds that the light emitting part of the canal ray stream is very little deflected by a magnetic field. This is in accord with his theory, because it is from just those particles that are suffering the most violent collisions, with ionizations and recombinations, charged perhaps now one way, then the other, so that the resultant magnetic deflections would be little, that we would expect the most radiation of light.

METROLOGY. New and very consistent determinations of the volume of a kilogramme of water at its maximum density have been carried out by Benoit at the International Bureau of Weights and Measures. The mean value of this volume is 1,000.28 cubic centimetres, whereas of late a value slightly less than 1,000 cc. had been the accepted one. At the Bureau also, refined studies of the thermal expansion of mercury between -20°C . and 100°C ., and of water between the freezing and the boiling point, have been made by Chappuis, who gives more exact equations for the expansion curves than have hitherto been available. Chappuis and Berthelot have made elaborate studies of the behavior of gas thermometers, using several different gases.

G. W. Pierce has developed a comparatively simple method for measuring the intensity of sound, depending on his discovery of a property of certain bodies, notably molybdenite. When supplied with contact electrodes, one of which makes contact with the crystal of molybdenite over a considerable area, the other only a point contact under proper pressure, the molybdenite acts as a rectifier for small electric oscillations, allowing the current to pass in one direction only. The sound to be measured falls on a telephone diaphragm, the vibration of which generates a magneto-telephone current that is measured by a galvanometer after rectification by the method just mentioned. Among other uses the apparatus has been applied by the in-

ventor to exploring auditoriums with reference to relative intensities of sound at different points.

PINCHOT, GIFFORD. An American forester, was born in Simsbury, Conn., on Aug. 21, 1865, graduated at Yale in 1889 and studied forestry in the Nancy (France) School, as well as in Germany, Switzerland, and Austria. He began on the Vanderbilt estate, at Biltmore, N. C., in 1890, the first systematic forestry work ever undertaken in the United States, and in 1896 was a member of the National Forestry Commission, appointed by the National Academy of Sciences, which set the boundaries of the first forest reserves afterward (1897) established by President Cleveland. The Division of Forestry, of the Department of Agriculture, organized under his direction in 1898 and 1908, had a complement of about 400 persons attached to the six district headquarters in the field. In 1903, as a member of the Public Lands Commission appointed by President Roosevelt, Mr. Pinchot made a careful examination of the public lands policy and submitted a valuable report on that subject, and it was at his suggestion that the Inland Waterways Commission was formed and made one of the four sections of the National Conservation Commission, of which he is the chairman. As head of the Government Forest Service he has the care of about 168,000,000 acres of national forests, and directs the work of about 2,500 men.

PISCHEL, RICHARD. A German Sanskrit scholar, died in Dec., 1908. He was born in Breslau, in 1849, was educated there and in Berlin, was professor of Sanskrit at Kiel from 1875 to 1885, and in 1902 became a member of the faculty at Berlin. He specialized in classical Sanskrit, and particularly in the Sanskrit drama, which he considered not indebted to the Greek drama. He also wrote on the Vedic period, and, collaborating with Geldner, published three volumes of *Vedische Studien* (1889-1907); on Prakrit grammar, *Hemacandra's Grammatik der Prakritsprachen* (1877-80); and, with Bühler, *Hemacandra's Deçñāmamāla* (1880). His other works include: *Kālidāsa's Cakuntalā*, the Bengali recension (1877); *Die Heimat des Puppenspiels* (1900), and *Materialien zur Kenntnis des Apabhramsa* (1902).

PITTSBURG SURVEY. See POPULATION, CONGESTION OF.

PLAGUE. The pandemic of bubonic plague in 1908 was in the fifteenth year of its spread. From the province of Yunnan, China, where it originated in 1894, the disease gradually extended to nearly every country of the earth, and in many places the most determined efforts on the part of sanitarians failed to remove it. Within six years after its recrudescence the plague had extended to every continent, and fifty-two countries were infected, the disease advancing along the routes of travel and commerce. The plague pandemics of history lasted long. That occurring in the sixth century—the Justinian plague—lasted over 50 years. The Black Death of the 14th century endured as long. The pandemic was widespread owing to facilities for travel and threatened to outlast its predecessors. The active agent in disseminating plague is now known to be the rat. Professor Koch considers the problem of plague prophylaxis as equivalent to the extermination of these rodents. The mortality records are appalling. Since 1896, India has had over five

and a half millions of deaths; during the last year there were 1,400,000 cases and 1,200,000 deaths. (See VITAL STATISTICS.) China and Japan had epidemics in many places, with a large number of deaths. In the Punjab, India, the disease made its greatest ravages. Deaths in 1907 reached 608,685, or 30.3 per 1,000, as against 19.7 per 1,000, the highest previous mortality rate in 1904. Since its first appearance in this province in 1902 plague has claimed nearly 2,000,000 victims, or 9 per cent. of the population. Dr. Haffkine, who had done valuable work in plague investigation and prophylaxis in India, had a setback in his work owing to the death of nineteen persons who contracted tetanus after inoculation with his plague serum. (See SERUM THERAPY.) This was not due to the prophylactic but to opening the bottle with infected forceps.

PLAGUE IN CALIFORNIA. Human plague was first noted in San Francisco in Mar., 1900, and lasted until Feb. 29, 1904, when the last cases were verified. In May, 1907, three years later, it again appeared, and verified cases occurred in several towns in Contra Costa County, and in Oakland, Alameda, and Berkeley. Ground squirrels were then believed to be the agents of its spread, and this was finally proved to be the case. Deplorable sanitary conditions existed in San Francisco after the earthquake, when thousands of people were living in a most unsanitary state, and rats, flies, and fleas were plentiful. Out of the hastily constructed stables as many as 75 to 100 dead rats were swept every morning. A campaign of rat extermination followed. Traps and poisons (arsenic and phosphorous being most effective) were used and over 1,000,000 rats were destroyed. About 15,000 fleas were combed from the rats and identified as follows: *Ceratophyllus fasciatus*, *Pulex cheopis*, *Pulex irritans*, *Ctenopsyllus musculi*, and *Ctenocephalus cornis*, in the proportion respectively of 68, 21, 5.57, 4.48, and .52 per cent. For full account see Eager, "The Present Pandemic of Plague"—a pamphlet issued by the Public Health and Marine Hospital Service; and article "Plague in California," *Journal of the American Medical Association*, Sept. 19, 1908, p. 1010.

PLANETS. See ASTRONOMY.

PLANT BREEDING. See HORTICULTURE; BOTANY.

PLANT NUTRITION. See BOTANY.

PLANT PATHOLOGY. See BOTANY.

PLANT PHYSIOLOGY. See BOTANY.

PLATINUM. The production of platinum in the United States from domestic ores in 1907 was 357 ounces, valued at \$10,589, as compared with 1,439 ounces, valued at \$45,189, in 1906; with 318 ounces, valued at \$5,320, in 1905. The average price per ounce in 1907 was \$29.66. The greater part of the platinum used in the United States was imported, chiefly from Russia, the market being controlled, it was said, by a syndicate of French and English speculators. In 1908 there was a marked falling off in imports into the United States, the imports for 11 months, ending November 30, amounting to 38,857 ounces in 1908, as against 68,712 ounces in 1907 for a similar period. The price varied from \$26 at the beginning of 1908 to \$22 in July of that year, with offerings of the metal

as low as \$18 and \$17. At the close of the year the quotations were \$24.00 and \$24.50.

PLAYGROUNDS. Among the many new movements for the better care and rearing of future citizens and mothers, that for city playgrounds takes its place alongside child labor legislation (see CHILD LABOR), the guardianship of juvenile delinquents (q. v.), and the establishment of juvenile courts (q. v.), as probably the most recent. The establishment of recreation centres, parks, and playgrounds in the congested parts of cities is prompted both by the desire to restore to the children of such districts their natural right to joyful play and by the desire to prevent the growth of habits and associations favorable to lives of crime.

The Second Play Congress met at New York September 8 for a five days' session. There were 400 delegates in attendance from 29 different States, two-thirds of the delegates being from outside New York City. These delegates included a very wide variety of public officials and social workers, as, playground commissioners, directors, and supervisors from the larger cities, members of school and park boards, city mayors and aldermen, school principals and teachers, business men, ministers, social settlement workers, and Y. M. C. A. delegates. The first session of this Congress, in Chicago in 1907, had directed its efforts toward welding together the various classes of persons interested in providing means of recreation for city children. Besides, it had sought to arouse enthusiasm for more playgrounds, parks, and recreation centres. The second session turned its attention primarily to ways and means. They considered the equipment, supervision, and legislation needed to make their desire effective.

A report was presented on the results of an inquiry in Chicago on the relation between juvenile delinquency and playgrounds. The study was based on data furnished by the records of the juvenile court during its first nine years. The analysis showed that apparently small parks and playgrounds had no effect in diminishing juvenile crime, whereas larger playgrounds, equipped with apparatus that appealed to boys between the ages of 10 and 16 had an undoubted effect in that direction. This is the only statistical study yet made of this relation, both juvenile courts and playgrounds being recent developments, but its indications are opposed to the growing demand in many cities in favor of numerous small playgrounds, rather than few large ones.

The secretary of the National Playground Association reported that, whereas in 1907 only 66 cities had playgrounds, 185 had them in 1908, and 118 more contemplated their immediate establishment. The extension of playgrounds during the year was estimated to have cost not less than \$12,000,000, ranging from the several millions devoted to a few large and thoroughly equipped playgrounds in Chicago, to the few hundreds at Kalamazoo, Mich. During the year Boston, Washington, and Baltimore extended the playground season, and made some provision for night play by electric light. Field houses were added in Los Angeles, Dayton, Pittsburgh, Dallas, Washington, Newark, and Philadelphia. Pittsburgh made plans for recreation centres, with field houses, calling for a total expenditure for two millions. In New York City the Metropolitan Parks and Playgrounds Association, succeeding an older organization,

maintained seven playgrounds, eleven ball fields, and a summer camp, while the city opened its playgrounds at night for the first time. In every important city in California, and in Montreal, Quebec, Toronto, Ottawa, and Hamilton, Canada, the new movement wrought some effect. There were several voluntary associations formed and numerous gifts for playgrounds were made by wealthy men and women. Probably the most striking endorsement of the playground movement was that given by Massachusetts cities. The Legislature of that State, by a 1908 enactment, authorized cities to purchase sites and establish playgrounds, provided that the question of so doing be approved by the majority of the cities' voters. Twenty-three cities held such a referendum in December, all but one, Northampton, approving the proposition. While the idea failed in Northampton by only four per cent. of the total vote, it was carried by overwhelming majorities in the larger cities of Worcester, Springfield, Fall River, Lawrence, Lowell, Lynn, Brockton, and New Bedford.

The National Playground Association, assisted by an appropriation from the Russell Sage Foundation, maintained during the year a field secretary. It has thus been able to make a systematic study of the comparative merits of plans and devices in use in various cities under a multitude of different conditions. It gave especial attention to the work of Professor Hetherington of the University of Missouri, who has organized playgrounds in 31 cities in his State as a part of university extension in physical training. See JUVENILE DELINQUENTS and JUVENILE COURTS.

PLENER, IGNATZ VON. An Austrian statesman, died on Feb. 17, 1908. He was born in Vienna, on May 21, 1810, studied law, and entered the government service. He became privy councillor in 1859, and, in 1860, minister of finance, in which capacity he revived the Bank Acts and the Ministry of Commerce. In 1865 he resigned and became minister of commerce in the Giskra Liberal-Central Cabinet, which was dissolved in 1870. He was in the lower house until 1873, and then entered the House of Lords. In 1880 he proposed a personal income tax, which he believed would improve political conditions. Von Plener was Austria's oldest statesman.

POLAR RESEARCH. The event of the year in polar exploration was the return to Denmark in Aug., 1908, of the Mylius Erichsen expedition to the northeast coast of Greenland. It completed the mapping of the largest island of the world by a detailed survey of the unknown coast between Cape Bismarck in the south, Cape Glacier on the north coast of the island, and Cape Bridgman on the north coast of the archipelago, north of Greenland. Its surveys were thus connected with those of Peary. This was the main object for which the party started for Greenland in June, 1906, and it was fully carried out, though unfortunately the work cost the lives of Dr. Mylius Erichsen and of his two comrades, Lieutenant Hagen-Hagen and the Greenlander Brönlund, who perished of cold and hunger, after completing their survey of the mainland coast, while groping their way southward in the growing darkness of the fall of 1907. The body of Brönlund was found in the following spring with the precious survey sheets in a bottle around his neck and a mes-

age saying that Erichsen and Hagen-Hagen had died in November.

Previous to this expedition the east coast above 77° N. Lat. was practically unknown, though the Duke of Orleans, on the *Belgica*, in 1905, had gone as far as 78½° N. and from his ship had seen part of the outer islands. The Danish explorers found the coast line very tortuous. The most striking geographical feature is a wide peninsula extending far eastward to 12° W. Long. so that the outlet of the great Polar Basin between Greenland and Spitzbergen is much narrower than it was supposed to be. A long stretch of the coast, which was named King Frederick VIII. Land, is a beautiful mountain country with picturesque valleys, deep fiords and steep mountains, rising, however, only about 2,000 feet and fronted by numerous small islands with wide and narrow channels between them. Traces of glaciers of the former ice periods were found everywhere on the bare land and many animal and plant fossils, testifying to a once milder climate, were brought home. The country bare of the ice cap is narrow and especially in the north, the inland ice extends to the edge of the sea. Some of the fiords stretch inland 40 to 60 miles from the coast and Denmark fiord is 80 miles deep. The edge of the inland ice cap is steep in places, and in others the ascent to it is very gradual. The glaciers are few and not very productive of icebergs, but some of the fiord mouths are choked with stranded bergs. Forty miles west of the inland ice edge the explorers found and mapped nunataks (land rising above the ice cap) on which were flowers and fox tracks. On the land near the ocean, bears were rather plentiful, musk-oxen and wolves were scarce, snow-hares were in great abundance, and there were walrus and seals in the sea and some polar cod and inferior fish in the glacial lakes and streams. Salmon were plentiful in one lake. No living Eskimos were found, but everywhere along the coast as far north as Denmark fiord their tent stones, caches for meat, ruins of winter dwellings, and implements were found and evidence that they had hunted the whale and reindeer, neither of which appear, at present, to be in that region.

On July 6, 1908, Commander R. E. Peary started from New York on his steamer, the *Roosevelt*, for the Arctic Ocean by way of the Smith Sound Channels, West Greenland. His purpose is to make another attempt to reach the North Pole by sledge from the most advantageous base he is able to secure on the coast of Grant Land. He carried supplies for about three years and his attending steamer, the *Erik*, carried coal to replenish the *Roosevelt's* bunkers at Etah, near Smith Sound. His scientific assistants are Ross C. Marvin of Cornell, George Borup of Yale University, and D. D. McMillan of Worcester, Mass. Arriving at Etah, he secured Eskimos, dogs, and walrus meat for dog food and on Aug. 17 started north for Grant Land with apparently good prospects. He was supplied with sounding apparatus for the purpose of ascertaining sea depths and the nature of the bottom on his journey north over the sea ice.

Dr. F. A. Cook left New York in the summer of 1907, ostensibly on a Greenland hunting trip, but when his vessel returned, leaving him in northwest Greenland, it was learned that his real purpose was to attempt to reach the

North Pole. It was found, when Peary reached Etah, last summer, that on Mar. 3, 1908, Dr. Cook started from Annatok with eight Eskimos, four sledges, and twelve dog teams to travel across Grinnell and Grant Lands to the Arctic Ocean, where his journey over the sea would begin. The only news from him was a letter dated two weeks after his start informing his white comrade, Mr. R. Francke, that he was on the west coast of Grinnell Land making his way north. Mr. Francke came home on the *Erik*.

A French Arctic expedition, in command of Captain Bernard, left France on the steamer *Jacques Cartier* in April for the seas around Novaya Zemlya to investigate the opportunities for fishing in Barents Sea, make oceanographical researches, and study the minerals of the Novaya Zemlya mountains, which are believed to be a continuation of the Urals and may contain rich deposits of metals. Several uncharted fiords were discovered on the west coast of Novaya Zemlya and parties were landed for work on these two islands. The expedition is expected to remain in the field two years.

The British Antarctic Expedition, under the command of Mr. E. H. Shackleton, which left England on the steamer *Nimrod* in July, 1907, for Victoria Land and King Edward VII. Land, sighted the Great Ice Barrier that extends between these land masses on Jan. 15, 1908, and endeavored to push eastward to King Edward VII. Land, where the party hoped to make its winter quarters. Access to this land, however, was barred by ice and the expedition was compelled to turn back to winter near Victoria Land. While steaming along the Great Barrier the party discovered a bit of new land rising in low, rounded hills, covered with snow and ice some ten or twelve miles north of the Barrier. Its length was estimated at about 800 feet above sea level and the region was close to where Ross marked on his chart "appearance of land." The fact that this land was not seen by the earlier *Discovery* expedition was doubtless due to the thick weather which prevailed when that vessel was in this region. On Jan. 31, Mr. Shackleton and his landing party of fifteen men went ashore at Cape Royds, under the shadow of Mount Erebus, and here winter quarters were established about twenty miles north of the *Discovery's* winter station. The landing of the motor car, ponies, dogs, and other equipment was accomplished with some difficulty. The *Nimrod* then returned to New Zealand. Shackleton's party was equipped for all kinds of scientific work, and in addition it was hoped to make one or more extensive sledge journeys to add to our knowledge of the outlines of the Antarctic continent, and if possible to reach the South Pole. Shackleton believed he could make the motor car useful on the comparatively smooth sea ice over which one of the *Discovery's* sledge parties travelled to the highest south yet attained. In Dec., 1908, the *Nimrod* left New Zealand again for Shackleton's headquarters, expecting to return with the explorers in Mar., 1909, but with food supplies sufficient for 38 men for a year if the vessel is frozen in and cannot return this season.

The French expedition to the Antarctic, under command of Dr. François Charcot, sailed from Havre on Aug. 15, 1908, on the *Pourquoi Pas* (Why Not), a vessel especially built for

the explorer. The brilliant results of Dr. Charcot's work in 1904 along the west coast of West Antarctica, south of America, made it comparatively easy for him to raise the large sum required by his second expedition and he set out with a fine staff of scientific assistants, six motor sleds, and fully equipped for two years. Late in November, he sailed from Buenos Aires for his former field, about 500 miles south of Cape Horn, and will endeavor to outline the coast of Alexander Land far south of the point he attained in 1904; also to explore the great sea to the west between Alexander and King Edward VII. Land to map the coasts that limit this sea on the south, if they exist, and if feasible, to reach the South Pole, though this is not among his main purposes.

The most striking features of the Antarctic in 1908 were the unusual number of vast tabular icebergs that drifted northward, and the rapid development of new whaleries, with South Georgia as a centre, the revival of the industry being due to the discovery of new whaling grounds by the Antarctic exploring expeditions of the past few years.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF. A learned society founded in 1889 to promote political and social science in the broad sense of the term. It has a membership and subscription list of 4,506, of which 124 are life members and 250 are residents of foreign countries. The organ of the Academy, *The Annals*, is a bi-monthly publication, of which Professor Emory R. Johnson, of the University of Pennsylvania, is the editor-in-chief. During 1908 the Academy issued the following volumes: January, *American Waterways*; March, *Lessons of the Financial Crisis*; May, *Control of Municipal Public Service Corporations*; July, *Federal Regulation of Industry*; September, *Tariff Revision*; November, *Regulation of the Liquor Traffic*. During the early part of 1909 the following volumes will be issued: January, *Industrial Education*; March, *Labor and Wages*; May, *Conservation of National Resources*; July, *Political Problems of South America*. The Academy holds several monthly meetings during the fall and winter of the year and an annual meeting in April. The meetings held during the year 1908 were: Jan. 31, "The Relation of Industrial Education to National Progress"; Mar. 20, "The Influence of the United States in the Republics of South America"; April 10th and 11th, twelfth annual meeting, four sessions, "The Scope and Limit of Governmental Control over Industry and Corporate Management." Among the subjects discussed at its annual meeting were the following: "The Present Business Situation," discussed by Marcus M. Marks, William Jay Schieffelin, Isador Straus, Samuel Gompers, James M. Beck, Charles P. Neill, George L. Duval, and Theodore Marburg; "The Relation of the Government and the Public to Corporate Development," discussed by Hon. Peter S. Grosscup, Hon. Herbert Knox Smith, and James B. Dill; "The Nation and the Railways," discussed by Hon. Martin A. Knapp, Robert Mather, M. E. Ingalls, and William A. Glasgow, Jr.; "Federal and State Control of Corporations," discussed by James R. Garfield, C. M. Hough, John Sharp Williams, Theodore E. Burton, James L. Sladen, Dr. Talcott Williams, and Hon. Henry M. Hoyt. At the meeting on Nov. 2, the subject discussed

was "The Work of the National Commission on Country Life." The officers of the Academy are as follows: President, L. S. Rowe, Ph. D., LL. D.; Vice-Presidents, Samuel McCune Lindsay, Ph. D., Columbia University, Robert W. de Forest, LL. D., New York, Edmond J. James, University of Pennsylvania; Secretary, Carl Kelsey, Ph. D., University of Pennsylvania; Treasurer, Stuart Wood, Ph. D., Philadelphia; Counsel, Hon. Clinton Rogers Woodruff, Philadelphia; Librarian, James T. Young, Ph. D.

POLITICAL ECONOMY. GENERAL WORKS. Among the more noteworthy publications of the year may be mentioned the following: Homer J. Davenport's *Value and Distribution*, a work that is both critical and constructive; Richard T. Ely's *Outlines of Economics*, a revised and much enlarged edition of a well-known textbook, prepared with the collaboration of Thomas S. Adams and Max O. Lorenz, of the University of Wisconsin, and Allyn A. Young, of Leland Stanford, Junior University; C. J. Bullock's *Introduction to the Study of Economics*, third edition; B. C. Mathew's *Our Irrational Distribution of Wealth*; J. Conrad's *Grundriss zum Studium der politischen Ökonomie*; 2 Theil, *Volkswirtschaftspolitik*; and the third enlarged edition of the *Handwörterbuch der Staatswissenschaften*, edited by J. Conrad. Two elementary texts of the year were A. S. Johnson's *Introductory Economics*, prepared for the New York School of Liberal Arts and Sciences for non-residents; and J. Nearing and F. D. Watson's *Economics*. A very important new quarterly appeared in April, under the title *The Economic Bulletin*, published by the American Economic Association. The *Bulletin* contains a section devoted to *Personal and Miscellaneous Notes*, a means of disseminating news of special interest to professional economists. It also reviews in each number more than twenty-five recent books, in the various fields of economic inquiry; and gives a complete and classified list of book and periodical publications and book reviews of the immediately preceding months. The entrance of this new periodical has led the *Quarterly Journal of Economics* to cease the publication of its similar bibliographies.

MONEY AND BANKING. Owing to the great current interest in monetary and banking questions, there was an unusual output in this field. The following works may be mentioned: F. A. Cleveland's *The Bank and the Treasury*, revised and enlarged; C. A. Conant's *The Principles of Banking*; being the second part, separately issued, of the *Principles of Money and Banking*; *The Currency Problem and the Present Financial Situation*, a series of addresses delivered at Columbia University; Horace White's *Money and Banking*, third revised edition; J. J. Knox's *History of Banking in the United States*; J. J. MacLaren's *Banks and Banking in Canada*; A. Del Mar's *History of Monetary Systems in Ancient and Modern Times in Rome, France and other European Countries*; D. R. Dewey's *Financial History of the United States*, third edition; *Lessons of the Financial Crisis*, a series of articles published by the American Academy of Political and Social Science; three volumes of the hearings and arguments before the Committee on Banking and Currency on the proposals to amend the national banking laws; and a bibliography prepared by A. P. C. Griffin, giving "a select list

of books relating to currency and banking, with special regard to recent conditions."

TAXATION AND FINANCE. Under this heading should be mentioned *State and Local Taxation*, containing the addresses delivered at the first conference of the National Tax Association at Columbus, Ohio, in 1907. The addresses of the second conference, held at Toronto, Canada, in October, 1908, were to be published. A second and revised edition of Max West's *Inheritance Tax* was issued, and *Principles of Taxation* by the same author was announced. Professor Seligman published *Separation of State and Local Revenues*. The first annual meeting of the Minnesota Academy of Social Science resulted in a volume of valuable papers under the title *Taxation*. H. M. Powell prepared a *Manual of Corporation Taxation in New York for State Purposes*. Several books on India appeared: B. H. Baden-Powell's *Short Account of the Land Revenues and Their Administration in British India*; M. de P. Webb's *India and the Empire*; a *Consideration of the Tariff Problem*, and R. Lethbridge's *India and Imperial Preference*. The Department of Commerce and Labor published a volume entitled *Inheritance Tax Laws*; *Digest of principal features of laws of Great Britain, France and Germany, with outline of inheritance taxation in the United States, and collection of judicial decisions relating thereto*.

TRADE AND TRANSPORTATION. In addition to the books on colonial preference mentioned in the preceding paragraph, the tariff was discussed by both English and American writers. The following books may be mentioned: *Harvard University Lectures on Protection of Home Industry*, R. E. Thompson; *Tariff Revision*, a collection of papers published by the American Academy of Political and Social Science; *Trade and Tariffs*, by J. M. Robertson; *Sixty Years of Protection in Canada*, by E. Poritt; *Rise and Decline of the Free Trade Movement* (2d ed.), by W. Cunningham. Other works on trade included *The Geography of Commerce and Industry*, by W. F. Rocheleau; *The Trade and Administration of the Chinese Empire*, by H. B. Morse; *Japan, its Commercial Development and Prospects*, by T. Masuda; and *Les États-Unis, et les marchés Européens*, by J. Favre. Out of the abundant literature on transportation may be selected the following: two English works on State ownership, *The Nationalization of Railways*, by E. Davies, and *Railways and Nationalization*, by E. A. Pratt; *How the Public Can Own and Control New Railroads*, by Public Ownership and Government Supervision, by S. Jaros; *Five Years of Railroad Regulation by the States*, by G. G. Huebner; *Rate Regulation as Affected by the Distribution of Governmental Powers in the Constitutions*, by R. P. Reader; *Federal Regulation of Industry*, by the American Academy of Political and Social Science; *No Government Guarantee of Bank Deposits and No Ownership of Railroads by the Government*; *Congressional History of Railways in the United States*, by S. H. Harvey; *Private Freight Cars and American Railways*, by L. H. D. Weld; *American Railway Transportation* (2d ed.), by E. R. Johnson; *Railway Reorganization*, by S. Daggett; *Economics of Railway Operation*, outlining the operations of each department and bringing into clear relief the underlying principles of economic operation, by M. L. Byers; *Confessions of a Railroad Signalman*, by J. O. Fagan;

Moody's and Poor's Manuals of railroads and the reports of the Interstate Commerce Commission. Historical works included: *History of Transportation in the Eastern Cotton Belt to 1860* by U. B. Phillips, and *Transportation on the Great Lakes*, by W. Thayer. The library of Congress issued a bibliography of books and periodical literature "relating to deep waterways from the Great Lakes to the Atlantic Ocean."

The periodical literature on these and other economic topics was abundant and frequently of superior excellence. For classified lists, see the *Readers' Guide to Periodical Literature*, or *The Economic Bulletin*.

POLO. The club championship of the Polo Association was not contested in 1908, as there was but one entering team. The junior championship event took place at Van Courtlandt Park on September 5. The New Haven Polo club was the winner, defeating Squadron A by 15½ goals to 4¾. In the cup contests the Meadow Brook Club made an excellent showing, defeating the Rockaway Club 10½ to 9½, 13½ to 9¾, 13 to 9¾, 11¼ to 8¾, and 16 to 5. Meadow Brook also defeated the Country Club, Westchester, by 10¼ to 6, Great Neck by 9 to 2¾, Bryn Mawr by 12 to 3½ and by 17½ to 10, and Dedham by 8 to 4½. Squadron A defeated the Meadow Brook Freebooters by 15½ to 4, and was defeated by New Haven, 5½ to 9.

POPULATION, CONGESTION OF.

NEW YORK. At the twenty-fifth anniversary meeting of the New York Charity Organization Society early in 1908, Mrs. Florence Kelly said that at the end of twenty-five years of the society's work conditions in New York were not improved; there was relatively more poverty, more dependence and a larger and denser congested area. She argued that this failure was due to the policy of trying to cure rather than to prevent congestion. This was a prevailing sentiment. Public opinion is not yet ready for a rational and utilitarian treatment of the problem. From March 9-28, an exhibit of congestion of population in New York City was held in the American Museum of Natural History. By the use of diagrams, maps, moving pictures, models of tenements, and other reductions of actual conditions, the causes and evils of congestion were made clear. The charts showed the distribution of nationalities, housing conditions, opportunities of children for play and recreation, prevalence of crime, mortality, sickness, recreation, relief, location of industries, and lines of transit, existing and proposed, for the distribution of population. It was shown that the density of population in Manhattan is 150.4 per acre, while that of Richmond and other outskirts of the city is only 1.9 per acre. Crowded streets are almost the only playgrounds. Statistics were presented to show that herding together leads to physical degeneration. Charts showed that a boy of 13 years brought up in a family accustomed to one-room quarters attained a height of 53.4 inches, while a boy brought up in four-room quarters attained to 55.8 inches. It was shown that sweated industries are more extensive than ever before, and that more people are working in their homes. The population of the world could be contained in the little State of New Jersey were it as thickly populated as eleven New York City blocks, which average 1,200 persons per acre. Charts showed that 18 per cent. of the families in the congested area occupied one room; and in the Italian quarter, 34.4 per cent. occupied only two

rooms. The average death rate for the city was shown to be 18.3 per cent., as against 24.9 in the congested region.

Among the suggestions for changing the present conditions were numerous means of developing transit facilities so as to enable the millions who find employment in the commercial and manufacturing districts of Manhattan to make their homes in other boroughs. Another suggestion was the division of the city into various sections set apart for manufacturing, wholesaling, shipping, banking, and finance, with provision for areas for dwelling houses contiguous to each section. This idea was an adaptation of the plans being worked out in some cities of Europe where special areas are reserved for factories. The erection of model suburban centres was suggested, as was also the erection by the city of model tenements on a large scale. The influence of this exhibit was felt in every city in America. Plans were made by the committee for exhibitions in all large cities in 1909.

OTHER CITIES. The wide extent of the agitation against congestion and for better housing conditions showed itself in active agitation in St. Louis, San Francisco, Brooklyn, Baltimore, Pittsburg, Detroit, and various cities in New Jersey and Indiana. In St. Louis, investigation by the Civic League was followed by the formation of the Tenement House Association, which plans to build model tenements and to seek only 2 per cent. return on its investments. In San Francisco a new and thoroughgoing tenement house law was enacted. Its enforcement, however, was distributed among the Health, Police, and Fire Departments, thus reducing the chances of its becoming effective. In Brooklyn, where conditions are nearly as bad as on Manhattan Island, an exhibit was held from April 1-19. In Baltimore a very inclusive tenement house law was enacted in June.

PITTSBURG SURVEY. Under this title a group of experts in sanitary and civic work, directed by the Publication Committee of *Charities and The Commons*, carried on an extensive investigation in the Pittsburg-Allegheny region, between September, 1907, and December, 1908. As an impartial and independent body of students these workers enlisted the coöperation of all classes of citizens. The funds for this study were supplied by the Russell Sage Foundation for the Improvement of Living Conditions. In November and December a civic exhibit was held in the Carnegie Institute, setting forth many of the results of this investigation. Owing to the rapid industrial expansion the city has a very large foreign population, among whom living conditions have been probably the worst to be found in this country. Hundreds of houses crowded with inhabitants were really unfit for human beings. A large part of such sections are held by absentee landlords, some of whom live abroad permanently. It was shown that in some sections foreigners were paying higher rents than natives for equal accommodations. Cellars are used for bedrooms. Immigrant lodging houses realize the worst conditions. Boarding houses are run by men at the abnormally low cost of \$10 per month for both board and room. As many as 30 or 40 men were found living in one apartment, the kitchen being used as a bedroom, beds being used twice daily, for night and day shifts. Under such conditions there is great lack of decency and morality. Children raised in cramped and dirty quarters are set to work

early. The savings of laborers were found to be tolerably large, but were secured at a frightful cost. Many negroes were found living in cheap quarters, mostly on alleys, amid filth, immorality, and vice. The frightful loss of life and of economic efficiency from typhoid fever was shown by various charts presented at the exhibit, as also the loss due to industrial accidents. The immediate effect of the survey was to arouse public interest to the keenest pitch; a census of tenement houses was begun, and the Pittsburg Civic Improvement Commission, headed by the president of the city Chamber of Commerce, was appointed by the Mayor.

PARIS. Dr. J. Bertillon's researches show it to be impossible to give relief to all persons now improperly housed in Paris. From a study of the nineteenth census, he classifies the population on a basis of character of lodging as follows: the proportion living in lodgings with more than two persons to a room, 14.3 per cent.; the proportion with insufficient lodgings, that is, one to two persons per room, 37.4 per cent.; proportion with sufficient lodgings, that is, one person per room, 23.4 per cent.; proportion with large or very large lodgings, 24.8 per cent. He found that one-seventh of the population lived three or more in one room, or five or more in two rooms. To give sufficient lodging to the 340,000 persons living under these conditions would, in his estimation, require \$68,000,000. By a classification on the basis of size of family and character of lodging he found that the proportion of persons insufficiently lodged increased rapidly with the size of the family. By a study of conditions in five other French cities, he secured similar results, thus showing that the problem of proper housing is not peculiar to the largest cities, and that even very ancient cities are only to-day beginning to grapple with problems of congestion in a high-minded and scientific spirit.

PORTER, BENJAMIN CURTIS. An American painter, died on April 2, 1908. He was born in Melrose, Mass., on Aug. 27, 1843. During the period between 1872 and 1881 he made various trips abroad to study painting, receiving most of his training in Paris and Venice. He was elected a member of the National Academy of Design in 1880. The most notable of his earlier works are "Henry V" and the "Princess Kate" (1868), "Portrait of a Lady with a Dog" (1876), and "Portrait of a Boy with a Dog." In recent years he had made a specialty of portraiture, maintaining studios in New York and Boston, and having as clients many prominent women of those two cities. His portraits won him gold medals at the expositions at Paris, 1900, at Buffalo, 1901, and at St. Louis, 1904.

PORTO RICO. A territorial possession of the United States, ceded by Spain under the treaty of Dec. 11, 1898. It is the easternmost of the four larger Antilles. The population, according to a census made in 1900, was 953,243, of whom 589,426 were white and 363,817 were colored. Its area is 3,435 square miles. The proportion of whites is greater than in any other of the West Indies, except Cuba, constituting 61.8 per cent.

MANUFACTURES. Outside of the establishments devoted to sugar and tobacco manufacture, there is little manufacturing in the Island. There are good facilities for manufacturing in the great water power and cheap labor available. There are several canning establish-

ments, but they are in operation only during five months when pineapples are being canned. There are manufactories of macaroni, planing mills, shoes, hats, drawn work and embroidery. Owing to the great depth of the water around the coast, Porto Rico has no fisheries. There are valuable deposits of gold, silver, nickel, copper, iron, lead, salt, and phosphate, but at the present time these have not been developed.

COMMERCE. The value of the merchandise shipped from the United States to Porto Rico during the fiscal year 1908 was \$22,360,336, as against \$25,320,465 in 1907; the amount shipped from Porto Rico to the United States was valued at \$25,885,776, chiefly tobacco and fruits, against \$22,065,245 in 1907. Of the exports from the United States, breadstuffs amounted to \$1,656,368; manufactures of cotton, \$2,815,467; fish, \$564,078; manufactures of iron and steel, \$3,452,770; meat and dairy products, \$2,391,205; rice, \$3,488,091; manufactures of wood, \$1,117,705. Of the exports from Porto Rico to the United States brown sugar amounted to \$18,690,149; molasses, \$265,998; cigars, \$3,407,747; leaf tobacco, \$1,582,559; oranges, \$630,666; all other fruits, \$528,670; manufactures of iron and steel, \$145,632; in 1907-8 234,006 tons of sugar, with a value of \$18,690,504, as compared with 204,079 tons valued at \$14,770,650 in 1907. There were exported in 1908 106,275,000 cigars, valued at \$3,414,140, compared with 129,210,000 valued at \$4,241,410 in 1907. The amount of leaf and stem tobacco exported was 8,392,286 pounds valued at \$1,996,055, compared with 3,344,639 pounds valued at \$1,232,058 in 1907. The coffee exported in 1908 amounted to 35,256,489 pounds valued at \$4,304,609, as compared with 38,756,750 pounds valued at \$4,693,004 in 1907. The total value of the fruit crop in 1908 was \$1,159,427, which was an increase of more than \$375,000 over the previous year.

AGRICULTURE. The general agricultural situation in the Island during 1908 was, on the whole, unfavorable. Although the greatest number of tons of sugar in the history of Porto Rico was exported, yet the cane crop of the Guayama district was almost a total loss. Tobacco also suffered heavily and the crop of coffee fell below that of 1907. The growth of the sugar industry has been steady since 1905. The output in 1908 was over three times that of the first year of the civil government, while the value of the crop has practically quadrupled the figures of 1900 and 1901. The great district lying between the districts of Guayama and Ponce on the south side of the Island has suffered since 1906 from a prolonged drought. The acreage devoted to the tobacco crop has greatly increased in 1908, but the total value of the exports was less than in 1907. This was caused by bad weather conditions in the months of December, January, and February, causing an estimated loss of 40 per cent. of the crop, and the unsettled financial conditions in the United States, which reduced the prices from 15 to 20 per cent. below those of former years. There was a falling off in the yield of coffee of 3,500,000 pounds in 1908. Of the 35,000,000 pounds exported, only 129,322 were shipped to the United States. This is less by about 50,000 pounds than the amount exported in 1907. The growing of fruit has received a great deal of attention in the Island and many

growers experimented during the year with pineapples as a quick crop in citrus groves. Large quantities were shipped fresh and the output of the pineapple canneries was nearly double that of 1907. The fruit industry suffers from the difficulties of transportation. The loading facilities are inadequate and the steamers are not fitted for this class of freight. Among minor crops, sea island cotton, though having suffered severely from the drought of 1907, showed an export of 223,053 pounds, more than double the amount shipped in 1906-7. Much assistance is being given to the cotton planters by the United States Agricultural Experiment Station (q. v.).

Much interest is being taken in the reforestation of the Island. Large tracts of land in many sections have been entirely denuded and are now practically worthless for grazing or crops. Legislation will be urged at the next session of the legislature to prevent the destruction of forests and for the replanting of the barren sections of the mountains.

TRANSPORTATION. The only important development in the railroads during the fiscal year 1908 was the completion of the road between Rio Piedres and Caguas, which was opened for traffic during the year. The road will eventually be operated by electricity, but at present is run by steam. An appropriation of \$10,000 was made at the last session of the legislature for the improvement of the Bayamon River, so as to make it navigable from that town to the harbor of San Juan. Work is being pushed on the Ponce-Guayamato to complete the connection between these towns. No harbor improvements were provided for or carried out by the insular government during the year. The work by the United States in dredging San Juan harbor, begun in Jan., 1908, was pushed throughout the year and very material progress was made. Large mileage was added during the year to roads and bridges, which has greatly facilitated transportation between various towns of the Island.

EDUCATION. The number of white pupils actually enrolled in all of the schools of the Island in 1907-8 was 59,785, of whom 34,932 were male, and 24,853 were females. There were 19,967 colored pupils, of whom 11,419 were males, and 8,548 females. The total number enrolled in all the schools, white and colored, was 79,752. Of these 74,114 were enrolled in the common schools and 5,638 in special schools. The average daily attendance during the year in the common schools was 54,375. The number of buildings in use for schools during the year was 799, of which 610 were rural and 189 town schools. The estimated value of all insular school buildings was \$564,825. The number of pupils enrolled in public high schools was 217. The total number of teachers was 1,331, of whom the white males numbered 578 and white females, 571; the colored males, 83, and colored females 99. The total expenditure for school purposes in 1907-8 was \$1,093,311, of which \$752,537 was expended by the insular government and \$340,774 by the local government.

There were 97 night schools in operation in the Island at the end of the fiscal year, with an enrollment of 3,639 pupils. The night schools were attended by both children and adults and the work done was for the most part very elementary. The work of education on the Island,

as a whole, shows very satisfactory results. The University of Porto Rico, which was established in 1903, includes a normal department, and a department of agriculture. Plans were prepared in 1908 for the opening of a mechanical department. The institution has been hampered by a lack of funds. In May, 1908, an allotment was made under the Morrill Act. The number of pupils enrolled in 1907-8 was 159.

FINANCE. The total insular revenue receipts for 1907-8 amounted to \$3,572,547. Of this amount \$979,990 came from customs; \$2,103,615 from internal revenue; \$283,680 from miscellaneous sources. The expenditures for the same period were \$3,511,599, of which \$2,594,004 was expended for executive purposes; \$379,140 for judicial purposes; \$292,993 for loans to municipalities; \$71,674 for loans to school boards. The Island had a cash surplus on hand at the end of the fiscal year of \$1,072,326.

CHARITIES AND CORRECTIONS. The charitable institutions of the Island include the insane asylum at San Juan, the blind asylum at Ponce, the leper colony, girls' charitable school, boys' charitable school, and hospitals in the different towns. On Jan. 21, 1908, a reform school for juvenile delinquents was established at Mayaguez. With few exceptions none of the penal institutions of the Island are provided with adequate quarters. On Jan. 30, 1908, there were 1546 prisoners in the correctional institutions.

HEALTH AND SANITATION. The death rate during the fiscal year 1908 was 22.97 per thousand against 26.17 per thousand during the fiscal year 1907. The births during the fiscal year exceeded the deaths by 10,721. The largest number of deaths was the result of pulmonary tuberculosis. These numbered 1845. Next in order was bronchitis, 1441; enteritis, 1325; gastro-enteritis, 1011; pernicious anemia, 1257; tetanus, 1188. The total number of deaths in that period was 23,980. During the first part of the year there was an epidemic of typhoid fever at Caguas. Tuberculosis prevails throughout the Island, and while it did not increase to any great extent in 1908, few steps have been taken to diminish the disease. The sanitary condition of the Island is very unsatisfactory. Local authorities and private individuals show a marked indifference to all that has to do with matters of sanitation. Impure water is one of the chief causes of some of the epidemics that prevailed, and impure milk results in a high death rate among infants.

HISTORY.

LEGISLATION. The legislative assembly at the session of 1908 enacted 94 laws, the greater number of which were merely amendments to the various codes, and extra appropriations for educational purposes and public improvements. The most important were the laws for the regulation of public service corporations, which gives wide powers of supervision to the executive council, and a law providing for the reorganization of the police service. The election law was also amended in such a way as to avoid the necessity for a new registration of all voters at every election. Provision was also made for the publication of an official gazette.

JUDICIARY. The Supreme Court of Porto Rico heard and decided during the year 169 appeals in civil cases, and 60 in criminal cases. In the district courts 2,570 civil and 1,014 criminal cases were tried. Of the criminal cases in these

courts only two were for murder in the first degree, and but eleven in the second degree. In the municipal courts 2,729 civil cases and 27,158 criminal cases were tried. These criminal cases are the minor offenses, such as breach of the peace, cruelty to animals, etc.

CHURCH CASES. Ever since the American occupation of the Island there has been a dispute between the Roman Catholic Church in Porto Rico and the insular government and the United States as to the ownership of certain property occupied by the insular and Federal authorities. These properties include several barracks occupied by the United States and a number of pieces of property in San Juan. Under the provisions of the act passed in 1904, the church brought suit against the insular government for the possession of the properties in dispute, but no action was brought against the United States. In Dec., 1906, the Supreme Court handed down a decision in favor of the Island in two of the suits and against the Island in another. All these cases were appealed to the Supreme Court of the United States where they are now pending. In April, 1908, an effort was made through the Catholic Bishop of Porto Rico to settle the case out of court, the proposition being that the church should appoint two commissioners, the insular government two, and the United States two, who should all meet in San Juan, and if possible find some basis of settlement for all matters in dispute. It was decided to accept this offer and the commission, which met in August, was appointed. Their findings will be submitted for ratification to the legislative assembly of Porto Rico, to the Congress of the United States, and to the Holy See.

INSULAR POLICE. A complete reorganization of the insular police force, to take effect at the beginning of the year 1908-9, was provided for by the legislature at the session of 1908. This law contemplates the organization of the force by municipalities rather than by military districts. On June 30, 1908, the numerical strength of the force was 700 guardsmen. During the year the police proved itself a well disciplined and efficient body, and law and order were preserved in the Island.

OTHER EVENTS. At the last session of the 60th Congress an act was passed placing the Porto Rico regiment upon a permanent basis. On Aug. 8, the 400th anniversary of the first settlement of Porto Rico by Juan Ponce de Leon was celebrated. The remains of Ponce de Leon which were in the church of San José in San Juan were transferred to the Cathedral, where the Spanish colony of Porto Rico had erected a fitting mausoleum.

In September the legislature was in deadlock with the government for two days over the question of the appointing power of the physicians to be named as members of the Anæmia Commission. The government wished the Governor to have the power of appointment, while the legislature wished this authority to be vested in the Director of Health. The House of Delegates refused to approve the three million dollar irrigation project, which was the chief motive for calling the extra session of the legislature, unless the government yielded. This the government did and the session closed. There was a long continued strike among the cigar makers in September and October which resulted in a victory for the employees. The factories agreed

to pay \$1.50 a thousand for the making of cigars, which was the point contended for by the cigar makers. A new capitol is to be built on the summit of the highest hill in San Juan, facing the South and overlooking the Bay. The contract for this was awarded on Mar. 15th to Frank E. Perkins of New York. An important decision was handed down by Judge Rodney of the Federal Court in deciding the libel suit brought against the editor of the *Heraldo Español*. Judge Rodney said that although Balbo was born in Porto Rico, his father was a Spaniard and the Spanish crown had granted him letters of naturalization after he had renounced whatever American or Porto Rican citizenship he enjoyed, still he remained a Porto Rican. The decision virtually signifies that a citizen of Porto Rico cannot expatriate himself and become a Spanish subject.

ELECTIONS. In the elections held on Nov. 3, the Unionist Party was victorious, completely routing the Republicans and carrying every district for the House of Delegates. As a result, the Republicans will not even have a minority in the House. This victory was obtained through the Unionist Party's preaching to the peasant masses, promising independence and self government. The Republican platform was the same as that of the Republican Party in the United States.

OFFICERS: Governor, Régis H. Post; Secretary, W. F. Willoughby; Attorney-General, Henry M. Hoyt, 2d; Treasurer, Sam'l D. Gromer; Auditor, George Cabot Ward; Commissioner of the Interior of Porto Rico, Lawrence H. Graham; Commissioner of Education, Edwin Grant Dexter; Director of Health, Charities and Corrections, Francisco de Pacuña; Civil Service Commission, H. C. Coles, José Lugo-Viña, Juan Guzman Benitez; Chief of the Insular Police, Wilhelm Lutz.

PORTUGAL. A kingdom of the Pyrenean peninsula. Area, including the Azores and the Madeira Islands, 35,682 square miles; population (1900), 5,423,132. Lisbon, the capital, had 356,009 inhabitants in 1900; Oporto, 167,955; Braga, 24,202; Setubal, 22,074; Funchal (Madeira), 20,884; Coimbra, 18,144.

EDUCATION. In 1905 there were 5,119 public and over 1,600 primary schools; 23 normal schools with 1,168 students; 27 State and 5 municipal lyceums, with 5,752 pupils, besides many private secondary schools; a military college, 261 students; 19 clerical seminaries, 2,167 students; 26 industrial schools, 3,685 pupils; 2 preparatory industrial schools at Lisbon and Oporto, 638 pupils; 2 commercial elementary schools in the same towns, 720 pupils; 2 higher technical schools in the same towns, 901 students; 2 polytechnic schools in the same towns, 462 students; 6 schools of medicine, 541 students; 3 schools of pharmacy, 57 students; a school of agriculture at Lisbon, 89 students; a military school, 263 students; a naval school, 61 students; a high school of letters, 95 students; schools of fine art at Lisbon and Oporto, 283 students; a conservatory of music and dramatic art at Lisbon, 596 students; and a recently founded colonial school. The University of Coimbra, with faculties of theology, law, medicine, mathematics, and philosophy, had 1,042 students in 1905.

PRODUCTION. The production of wheat in 1907 was estimated at 6,000,000 bushels; maize, 16,000,000 bushels; wine, 107,729,000 gallons,



Courtesy of the "Review of Reviews"

MANUEL II., KING OF PORTUGAL
ASCENDED THE THRONE FEBRUARY 1, 1908

against 122,945,000 gallons in 1906. The wine yield of 1908 was reported large but unprofitable, due to the great falling off in the English demand for port wine. The export of pitwood from Oporto, which commenced some ten years ago, amounted in 1907 to 93,882 metric tons, valued at \$225,000. The manufacture and sale of tobacco is a government monopoly, the concession of which (for Portugal only) is sold to a company. The concession was renewed in 1907 for a period of 19 years—to 1926. The quantity of tobacco manufactured during 1907-8 was 1,954,883 kilos (1 kilo = 2.205 lbs.), valued at 8,606,762 milreis (1 milreis = \$1.08), mostly cigarettes and cigarette tobacco. For the year ending Aug. 31, 1908, the number of cotton spinning spindles was estimated at 450,000, of which over 570,000 were reported workingshort time. The cotton consumption during the year was 81,000 bales.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1907 were valued at about \$79,798,000 and \$48,893,000 respectively. Imports from Great Britain amounted to about \$13,484,260, and exports to Great Britain, \$11,587,000. According to Washington returns, the imports of the United States from Portugal during the year ending June 30, 1908, amounted to \$4,967,922, and the exports of the United States to Portugal, \$3,086,072. The leading imports are wheat, codfish, sugar, textiles, iron and steel goods and machinery, and coal. The leading exports are wine, cork, fish, and copper ore. The merchant marine consisted in 1907 of 98 steamers, of 62,214 tons, and 508 sailing vessels, of 53,642 tons. The length of railway in 1908 was 1,676 miles; of State telegraphs in 1908, 5,466 miles.

FINANCE. The budget for 1908-9 estimated the revenue at 70,530,135 milreis (1 milreis = \$1.08) and the expenditure at 72,702,737 milreis. The cost of the public debt was estimated at 30,319,233 milreis, while the army estimates were 7,811,965, and the estimates for the navy and colonies 5,100,284 milreis. On June 30, 1907, the public debt consisted of 190,408,530 milreis for the external debt and 531,994,264 milreis for the internal debt. The floating debt stood on July 31, 1908, at 79,840,031 milreis.

GOVERNMENT. King Manuel II., born Nov. 16, 1889, younger son of King Carlos I., succeeded to the throne on the assassination of his father and elder brother on Feb. 1, 1908. The Cabinet at the end of 1908 consisted of F. J. Ferreira do Amaral, President of the Council and Minister of Interior; foreign affairs, Wenceslao de Lima; justice and ecclesiastical affairs, A. A. de Campos Henriques; finance, M. A. de Espregueira; war, Sebastiao Telles; marine and colonies, Aug. de Castilho; public works, commerce, and industry, J. Calvet de Magalhães.

ARMY AND NAVY. The army is recruited by conscription, but exemption may be purchased. The peace strength of the first line (i. e., standing army and first reserve) is about 33,000 officers and men; its war strength, 111,000. The strength of the second reserve is 64,000, thus raising the total war strength of the army to 175,000 men. The colonial army, mainly in Angola and Mozambique, numbers 12,700, of whom 3,400 are Europeans. The government in 1908 adopted an automatic pistol of the German Parabellum type for all officers and mounted troops. The effective navy at the beginning of 1908 consisted of 1 armored coast defense vessel, 3,200

tons; 5 protected small cruisers, 11,200 tons; 1 unprotected small cruiser, 1,110 tons; 14 gunboats, 6,876 tons; 1 destroyer, 530 tons; 4 torpedo boats, 240 tons; giving a total of 26 ships, of 23,156 tons, with crews numbering 4200.

HISTORY.

ASSASSINATION OF THE KING AND CROWN PRINCE. On Feb. 1, 1908, as King Carlos and Queen Amalia were driving from the railway station to the palace with their two sons, assassins fired several shots, killing the King and the Crown Prince. (For further details, see CARLOS I.) The crime was generally attributed to disaffection under the Franco régime. It was alleged that three days before the murder a Republican plot had been discovered to attack the police stations, and in the resulting confusion to win over the soldiers and sailors by declaring that a republic had been proclaimed. This plot being detected, it was said that a small band of Republicans planned the murder of the King and Franco, but that the latter escaped by accident, having walked through the streets instead of driving. However that may be, reports of plots were current in January, and Premier Franco's house was guarded. Discontent had been stimulated by the government's action in ordering the replacement of the elected parochial and municipal boards by administrative commissions appointed by the government, which would have control of the coming elections. The government adopted repressive measures on the very day of the murder, adding to the power of the Franco dictatorship, authorizing the Cabinet to exile any one suspected of plotting against the government, withdrawing the immunity hitherto granted to members of Parliament, and providing for the summary trial of political suspects without appeal.

THE NEW GOVERNMENT. The King's second son, Prince Manuel (b. Lisbon, Nov. 15, 1889), succeeded to the throne under the title of Manuel II. Premier Franco resigned and, pursuant to the advice of the government, left the country. His dictatorship, to which many attributed the assassination, had come about, so his supporters declared, as a result of the corruption of party government, and as the only means of reform. It was due directly to the obstructive policy of the Cortes in refusing to vote the budget, the alleged motive of their obstruction being its failure to provide for political graft as preceding budgets had done. Franco and his supporters had contended steadily that the suspension of constitutional guarantees was essential to any effective measure of reform. On the other hand, suspicion and discontent were fostered by his policy. In December, 1907, Senhor Vilhena, the newly chosen leader of the Regeneradores, had warned the government that the dictatorship must inevitably end in crime or revolution, and as time passed the dissatisfaction increased. Under the new King a coalition ministry was formed, with Admiral Ferreira do Amaral, an Independent, as Premier. Two other Independents, two Regeneradores, and two Progressists were in his Cabinet. On Feb. 5, the King issued decrees restoring the freedom of the press, repealing the decree that suspended the immunity of Deputies from prosecution, and liberating such Deputies as were under arrest. By the end of February the repressive measures of the Franco régime were all revoked. It was decided that the elections should be held on the date appointed and that the Cortes should be convoked on

April 29. The elections were the occasion of some rioting in Lisbon, where six persons were killed and 50 wounded. The Monarchist parties were completely victorious. The returns were: Regeneradores, 63; Progressists, 59; Independents, 15; Republicans, 7; Dissident Progressists, 7; Franquistas, 3; Nationalists, 1. The budget as voted by the Cortes was as follows: Estimated revenue, \$79,000,000; estimated expenditure, \$80,000,000. The Minister of Finance was attacked for advances made to the late King and to members of his court. The tariff bill doubling the duties on articles from countries which discriminated against Portugal was passed in August. A new commercial treaty with Germany was ready for ratification at the close of the year. The wine growers were expecting great improvement in the trade from its adoption. Among the measures urged were constitutional revision and electoral reform. Discussion arose from the young King's desire to restore to the treasury money drawn from it by his father. An investigation was proposed, but an opposition developed which led to the accusation that the objectors feared lest an investigation should disclose the fact that a large part of the money went to the leaders of the parties in power. On Dec. 21 the newly elected Municipal Council of Lisbon discovered that \$7,000,000 of the city's money had been misappropriated. The great political parties which had taken turns in looting the national treasury were undoubtedly implicated. The followers of Franco took advantage of the scandal to reorganize in preparation for a renewal of the struggle. On Dec. 23 a new ministry was formed by Pereira de Lima, former minister of foreign affairs.

PORTUGUESE EAST AFRICA, OR MOZAMBIQUE. A possession of Portugal on the east coast of Africa. Area, about 293,860 square miles; population, 2,300,000. The principal ports are Mozambique, 5,500 inhabitants; Chinde, 3,000; Beira, 4,500; Lorenzo Marques, 10,000. The crops include maize, sorghum, wheat, oats, barley, lucerne, bananas, pineapples, vegetables, and numerous mafura trees, which bear a seed containing a large proportion of oil. Sugar-cane grows luxuriously and yields a high percentage of sugar. Steamers of 450 tons burden can sail up the river to the northern limits of this region. Experiments in cotton culture in Gazaland, some 20 miles from Lorenzo Marques, and elsewhere, have produced satisfactory results. In the Inhambane district also cotton may be grown with success, but owing to lack of proper methods the experiments have been abandoned. The coffee of this district is in great demand, and there are also large plantations of sisal fibre and rubber. Sisal fibre plantations have also been laid out near the Nahali River and elsewhere. Large quantities of rice are grown in the Zambesi district. Cheap native labor is abundant. Owing to the destructive methods employed by the gatherers of mangrove bark, the cutting of mangrove and acacia trees on crown lands was prohibited in 1908 for a period of ten years. The export of oil seeds and nuts in 1906 amounted to 26,771,092 pounds; it has been steadily and rapidly increasing. The imports in 1906 amounted to 7,469,85 milreis; the exports, 4,684,127 milreis; the transit trade, 27,197,988 milreis (1 milreis = \$1.08). A considerable part of the trade of British South Africa (q. v.) passes through Portuguese ports. There are 279 miles of rail-

way and 2,182 miles of telegraph line. The revenue for 1907-8 was estimated at 5,475,631 milreis; the expenditure at 5,223,823. The Governor-General in 1908 was A. A. Freire d'Andrade.

POSITIVE RAYS. See PHYSICS.

POST, RÉGIS HENRI. An American colonial administrator, was appointed governor of Porto Rico in 1907, his appointment being confirmed by the Senate on Jan. 16, 1908. He was born in New York City on Jan. 28, 1870, graduated at Harvard in 1891, studied law and was admitted to the bar. He was a member of the New York Assembly in 1899 and 1900, and in 1904 was appointed secretary of the Insular government in Porto Rico, succeeding Beekman Winthrop as governor in 1907.

POSTAL SAVINGS BANKS. In his annual message of Dec., 1908, President Roosevelt renewed his recommendation for postal savings banks. The demand for postal savings banks was greatly stimulated by the money scarcity existing during the early months of the year. It was pointed out that millions of deposits withdrawn from banks and from circulation would have in large part found their way back to trade channels through postal savings banks had such existed. The fact that the government would guarantee the deposits in such banks would give depositors every confidence in their safety. However, the Committee on Federal Legislation of the American Bankers' Association, at Denver, in October, reported adversely to postal savings banks. The grounds of opposition were, first, that present savings banks are sufficient for all legitimate needs, and, secondly, that this was a sphere of activity properly left to state governments.

As against the contention of this committee that present facilities are adequate, Postmaster-General Meyer in his 1908 report showed that 98.4 per cent. of all savings banks deposits in the United States were in fourteen States, all of them northern and eastern States, except Iowa and California; this left only 1.6 per cent. for the remaining thirty-two States. Many of these latter States have no savings banks and in all of them there are sparsely settled communities that have no banks at all. He argued from this that some means of safe deposit was badly needed in a large portion of the country. He said, "It has been estimated that altogether fully half a billion dollars not today placed in any bank due to want of opportunity or lack of confidence, might be brought back into circulation through the agency of postal savings banks." Since postal savings banks are expected to find their greatest usefulness in rural and sparsely settled communities, through the more than 40,000 money order post offices in the United States, it is not believed they would compete seriously with existing savings institutions.

As evidence of the demand for postal banks the Postmaster-General stated that during the fiscal year 1908 more than \$8,100,000 worth of postal money orders had been bought payable to purchaser by persons in twelve western and southwestern States. The party platforms of the Republican, Democratic, and Independence parties advocated the establishment of postal savings banks. Those of the last two parties named included in their recommendation that the money deposited in such banks be held for

loan by the government in the communities where deposited. The Democratic platform expressly and strongly condemned a postal savings bank plan whereby the deposits from rural regions should be aggregated by the government and so redeposited as to accumulate in financial centres. This was doubtless a criticism upon a measure introduced and favorably reported in the first session of the Sixtieth Congress, but left over for final consideration at the second session, 1908-9. This bill authorizes the government through the post offices to receive money on deposit. Such deposits, guaranteed by the government, are to be redeposited in national banks in the district where the post offices receiving them are situated. The government will thus not engage in the banking business by loaning this money to private borrowers. The national banks will be required to pay not less than $2\frac{1}{4}$ per cent. interest on such deposits; the government in turn will pay the original depositors 2 per cent., keeping the one-fourth per cent. to cover the cost of operation. The amount of interest-bearing deposit is fixed in the proposed law at \$500.

The Philippine postal savings banks established under laws of 1906 and 1907 numbered 245 on June 30, 1908. There were 5,389 accounts with deposits aggregating 1,031,994 pesos (\$515,997). The deposits were slightly more than double of those of one year previous. About 44 per cent. of the deposits belonged to Filipinos and 50 per cent. to Americans. Deposits bear $3\frac{1}{2}$ per cent. interest.

The following table prepared from public reports and the *Statesman's Year Book* give statistics of postal savings banks throughout the world, exclusive of the Philippines.

Country	Date	Number of depositors	Deposits	Average deposit
<i>Europe:</i>				
Austria—				
Savings accts.	Jan. 1, 1908	2,064,403	\$44,270,035	21.44
Banking	Jan. 1, 1908	79,711	74,693,077	937.05
Belgium	Jan. 1, 1908	2,528,207	162,840,157	64.41
Bulgaria	Jan. 1, 1906	124,007	2,723,182	21.96
Finland	Jan. 1, 1907	57,555	1,213,973	21.09
France	Jan. 1, 1907	4,794,874	258,374,735	53.89
Hungary				
Savings accts.	Jan. 1, 1908	648,652	18,044,220	27.82
Banking	Jan. 1, 1907	14,928	14,066,296	942.28
Italy	Jan. 1, 1908	4,904,714	273,702,695	55.80
Netherlands	Jan. 1, 1908	1,336,846	58,849,392	43.75
Russia	June 30, 1908	1,995,000a	130,721,935	65.50a
Sweden	Jan. 1, 1907	569,155	14,498,185	25.47
Un'd Kingdom	Jan. 1, 1908	10,692,555	766,474,125	71.68
<i>America:</i>				
Bahamas	Jan. 1, 1907	1,971	122,621	62.21
Canada	Mar. 31, 1907	167,285	47,453,228	283.67
British Guiana	Jan. 1, 1907	11,192	369,522	33.01
Dutch Guiana	Jan. 1, 1907	6,525	261,405	40.06
<i>Asia:</i>				
British India...	Mar. 31, 1907	1,190,220	47,902,582	40.25
Ceylon	Jan. 1, 1907	71,018	886,890	9.67
Dutch E. Ind.	Jan. 1, 1908	56,464	2,845,860	50.40
Formosa	Mar. 31, 1907	68,723	685,657	9.98
Japan	Mar. 31, 1908	8,013,193	46,275,300	5.77
Straits Setmts.	Jan. 1, 1907	3,571	330,840	92.65
<i>Africa:</i>				
Cape Colony...	June 30, 1907	101,553	10,722,934	105.59
Egypt	Jan. 1, 1908	74,179	1,928,749	26.00
Gold Coast	Jan. 1, 1907	810	62,369	70.08
Orange River				
Colony	Jan. 1, 1907	6,120	771,340	126.04
Sierre Leone...	Jan. 1, 1907	4,991	334,840	67.09
Transvaal	June 30, 1907	51,022	6,548,844	128.35
<i>Australia:</i>				
New South				
Wales	June 30, 1906	270,982	43,232,288	159.54
Tasmania	June 30, 1906	17,813	2,336,173	131.15
W. Australia...	June 30, 1906	63,574	11,271,598	177.30
New Zealand...	June 30, 1907	319,733	56,077,799	175.39

(a) Approximately.

POTATOES. Unfavorable weather conditions in 1908 resulted in a comparatively low total yield. Data furnished by the Bureau of Statistics of the Department of Agriculture showed that 3,257,000 acres produced during the season a yield of 278,985,000 bushels, or 85.7 bushels per acre. The farm price per bushel, which was 70.6 cents on Dec. 1, was sufficiently high to make the crop of the year rank first in total value, the amount being \$197,039,000. In acreage the year also stood first, but in total production it has often been exceeded. The crop of 1907 amounted to 297,942,000 bushels, but its value at an average price on Dec. 1 of 61.7 cents per bushel reached only \$183,880,000. The leading potato-growing State in 1908, as in 1907, was New York, which produced 34,850,000 bushels on 425,000 acres. Ranking next were Maine with 26,100,000 bushels on 116,000 acres, Michigan with 23,400,000 bushels on 325,000 acres, Wisconsin with 20,160,000 bushels on 252,000 acres, and Pennsylvania with 19,944,000 bushels on 277,000 acres. These five States produced about 45 per cent. of the total crop on about 23 per cent. of the total area devoted to potato culture in this year. Data for 1906 with regard to the world's production show a total yield of 4,732,934,000 bushels. Of this quantity Germany produced almost one-third, or 1,577,653,000 bushels. European Russia stood next with 939,717,000 bushels, followed by Austria-Hungary with 709,237,000 and France with 372,076,000 bushels. Data for later years are not now available.

The per capita consumption of potatoes in the United States had been about $3\frac{1}{2}$ bushels for the previous 30 years. During the last few years of this period there had not always been produced enough to supply the demand and while usually there are exported about 1,000,000 bushels a year, in 1904 there were imported over 3,000,000 bushels. Every year, however, American exports are offset to some extent by imports. The fact that the supply is often short pointed to the advisability of increasing the production, and a number of the experiment stations were doing work along that line. The Connecticut station in potato-breeding investigations reported that there are characteristic differences in seedling power which are inherited by different varieties, and that the fluctuations in these characters are large and may be increased artificially by changing environmental conditions. Correlations of practical value were not ascertained. The variation in seed-boll production may be of value in originating new seedling varieties. The Illinois experiment station suggested the following as possible methods of improving the potato: Crossing desirable plants and raising many seedlings under controlled conditions; selecting the most desirable fluctuations among the plants and tubers of a variety; and selecting discontinuous variations and studying ways of causing them. It was believed that varieties of a much higher food value on account of a higher nitrogen content might be produced by selection of seedlings based on their chemical analysis.

POTTER, HENRY CODMAN. Sixth bishop of the Protestant Episcopal diocese of New York, died on July 21, 1908. He was born in Schenectady, N. Y., on May 25, 1835, the son of Bishop Alonzo Potter, of Pennsylvania, and a nephew of Bishop Horatio Potter, whom he

succeeded in the New York diocese in 1887. He studied at the Episcopal Academy in Philadelphia, and at the Theological Seminary of Virginia, at Alexandria, where he graduated in 1857; was ordered deacon in that year, and ordained priest in 1858. He was rector of Christ Church, in Greensburg, Pa., in 1857-58, of St. John's Church, Troy, N. Y., in 1859-66; assistant at Trinity Church, Boston, in 1867-68, and rector of Grace Church, New York, in 1868-83. In 1883 he was consecrated bishop coadjutor to assist his uncle, Bishop Horatio Potter. In 1863 he had declined the presidency of Kenyon College, and in 1875 he refused the office of bishop of Iowa. In 1866-83 he was secretary to the House of Bishops.

Though he did not actively identify himself with any definite ecclesiastical policy or party, Bishop Potter became known as a "broad churchman" while he was at Grace Church. Soon after he took charge of that parish he began to organize clubs for men, classes for women, day nurseries, and other features of institutional church work. His actual sympathy with a parochial system of this kind he demonstrated in many ways, and notably during the very severe summer of 1895, when he lived for several weeks in the Stanton Street Mission House, and did what he could to lessen the sufferings of the poor in the congested districts of the East Side. But the greatest single church undertaking with which he was conspicuously identified was the plan—largely of his own formulation—to build on Morning-side Heights the great Cathedral of St. John the Divine, the corner-stone of which was laid in 1892.

In a general way, it may be said that Bishop Potter made his church a definite and powerful force in the civic and social, as well as in the religious, life of the metropolis. His scathing letter addressed to Mayor Van Wyck, in 1900, calling attention to the prevalence, and apparent protection by the police, of vice in the East Side tenement district had much to do with the organization of the Committee of Fifteen, and the election of Mr. Low as mayor of New York in the ensuing campaign. He was also one of the organizers of the National Civic Federation, and was often influential in bringing about the settlement of labor disputes, though these services were frequently rendered by private correspondence, or personal communication with employers, of which the public knew nothing at the time. In this capacity he exerted himself to effect arbitration of the coal strike in 1902, a struggle in which he approved of John Mitchell's policy, and condemned the attitude of the mine owners, though he subsequently warned labor unions that they must not insist upon the union principle to the point of restricting personal liberty.

Probably the severest criticism of Bishop Potter was that aroused by his endorsement of, and participation in, the opening of the famous "Subway Tavern," at Mulberry and Bleecker Streets, New York, on August 2, 1904; but he stoutly defended the enterprise, on the ground that the saloon is "the poor man's club," and as such should be improved and made more attractive. Again, in 1906, during the trial for heresy of the Rev. Algernon S. Crapsey, of St. Andrew's Church, Rochester, N. Y., Bishop Potter publicly challenged the "consistency" and the "integrity" of the accused clergyman, to

which his counsel, Edward M. Shepard of New York, replied with a caustic arraignment of the bishop.

Bishop Potter was twice married, his second wife being Mrs. Elizabeth S., the widow of Alfred Corning Clark.

POULTRY. See STOCK RAISING.

POUREN, JAN JANOFF. See UNITED STATES.

POWERS, CALEB. See KENTUCKY.

PRAGMATISM. See PHILOSOPHY.

PRESBYTERIAN CHURCH IN THE UNITED STATES, often called the **SOUTHERN PRESBYTERIAN CHURCH.** A religious denomination organized as a separate body in 1861 in consequence of the withdrawal of 47 presbyteries from the jurisdiction of the General Assembly of the Presbyterian Church in the United States of America, because of political action taken by this latter body, which action these Presbyterians held it was incompetent for a spiritual court to take. In 1908, the church had 14 synods, 83 presbyteries, 1,625 ministers, 3,217 churches, 269,733 communicants, and 375 candidates for the ministry. It had reported 197,529 scholars and 23,063 teachers in 2,353 Sabbath schools. Contributions to home missions were \$276,318; to foreign missions, \$323,879; to education, \$250,903; to colored evangelization, \$20,321; to all causes, a total of \$3,507,075. Additions to membership on profession numbered 14,053. In 2,019 women's societies were enrolled 48,741 members, with contributions amounting to \$287,779. In 1,276 young people's societies were enrolled 30,952 members, contributing \$45,247. The assembly of 1908 organized a new synod, that of Oklahoma, and began the publication of *The Home Mission Herald*, as organ of its executive committee on that subject. It appointed an *ad interim* committee to draft an amendment to the form of government touching church property. It resolved to celebrate at its next meeting the quadri-centennial of the birth of John Calvin. It authorized the republication of official documents bearing on its distinctive principles. It appointed a permanent committee on evangelistic work, and also a committee to inquire into the expediency of erecting a judicial tribunal to relieve the assembly of hearing cases of appeal and complaint. Its next meeting will be in Savannah, Ga., May 20, 1909. Its stated clerk is Rev. W. A. Alexander, Clarksville, Tenn.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA. A religious denomination which dates as an organization from 1706, when the first presbytery was formed. Presbyterian congregations, however, existed many years previously, the congregation at Hempstead, N. Y., for instance, being founded in 1644. The General Synod was established in 1716, and in 1789 the first General Assembly met at Philadelphia. The denomination included in 1908, 36 synods, 279 presbyteries, 1,300,329 communicants, 10,017 churches, and 895 ministers. In the Sunday schools of the church were included 1,164,790 members. The contributions for all purposes for the year ending Mar. 31, 1908, amounted to \$22,099,820, as compared with \$21,230,429 in 1907. Of this sum, \$1,485,626 was contributed for home missions, \$1,179,260 for foreign missions, \$11,282 for education, \$174,394 for Sunday school work, \$184,407 for church direction, \$122,449 for the relief fund, \$149,739 for freedmen, \$520,314 for col-

leges, \$104,497 for temperance, \$137,925 for the purposes of the General Assembly, etc., \$16,230,716 for congregational purposes, and \$1,699,312 for miscellaneous purposes. The home missions of the church are carried on in the whole of the United States, including Alaska and Porto Rico. Mission schools are maintained among the Indians, Alaskans, Mexicans, mountaineers, and the people of Porto Rico and Cuba. The home missionaries in the field, Mar. 31, 1908, numbered 1,530, and missionary teachers, 432. The foreign missions are in the hands of the Board of Foreign Missions, which had under its direction in 1908, 28 missions, 148 stations, 1,948 missionaries, 3,129 native helpers, 510 fully organized churches, 85,487 communicants, 1,171 schools, 39,616 pupils, 95,534 pupils in Sabbath schools, 414 students for the ministry, 57 hospitals and dispensaries, with 386,564 patients treated annually. These missions are carried on throughout the world. The work among the freedmen in the South is carried on by the Board of Missions for Freedmen. The work, organized in 1865, had in 1908 381 churches and mission stations, 23,768 communicants and 20,832 Sabbath school scholars. The board aids in sustaining 240 ministers, 343 teachers. There were 13,576 scholars in its 114 day schools. The boarding schools numbered 17, including Biddle University at Charlotte, N. C., with 14 professors, all of whom are colored. The Board of Education is the organ of the General Assembly, charged with the general and efficient superintendence of the church's work in furnishing a pious, educated and efficient ministry in numbers sufficient to meet the calls of its congregations, and for other purposes of a similar nature.

The 120th General Assembly began its session in Kansas City on Dec. 21, 1908. Among the important matters transacted at the meeting were the following: The work of the American Anti-Saloon League was heartily commended; members of the church were urged to remember their individual responsibility for violation of child labor laws; a petition was presented to the United States government in favor of reforms in the Congo Free State; a resolution was adopted calling the attention of the presbyteries and churches to the desirability of having the churches in each community unite with those of other denominations for the formation of inter-church federations, with the purpose of evangelistic work, protecting the interests of the Sabbath, temperance, and Christian citizenship, and for the building up of a strong public opinion in support of civic righteousness and for kindred purposes. It was decided by the Judicial Commission that in dissolution of pastoral relations due notice of citation must be given to both pastor and congregation. The following resolutions were adopted in regard to marriage and divorce: "Resolved, That this General Assembly rejoices in the greatly awakened interest on the part of the churches and the public in the important question of divorce and remarriage, and heartily approves the efforts of the Inter-Church Conference in influencing public opinion to overcome the evils that threaten the sanctity of the marriage relation, the integrity of the family and the welfare of the State." The efforts made by the National Educational Association to secure adequate moral instruction in the public schools were ap-

proved. The terms of the proposed union with the Welsh Presbyterian Church were commended. Officers of the General Assembly for 1908 are as follows: Moderator, Rev. Baxter P. Fullerton, D.D.; Vice Moderator, Hon. Darwin R. James; Stated Clerk and Treasurer, Rev. William Henry Roberts, D.D.; Permanent Clerk, Rev. William Brown Noble, D.D. The next General Assembly will meet at Denver, May 20, 1909. See CUMBERLAND PRESBYTERIAN CHURCH.

PRESIDENTIAL CAMPAIGN. The presidential campaign of 1908 will be discussed in this article in the following sections: I. DEMOCRATIC AND REPUBLICAN NATIONAL CONVENTIONS; II. DEMOCRATIC AND REPUBLICAN PLATFORMS; III. OTHER CONVENTIONS AND PLATFORMS; IV. ISSUES OF THE CAMPAIGN; V. PROGRESS OF THE CAMPAIGN; VI. RESULT OF THE ELECTION.

DEMOCRATIC AND REPUBLICAN NATIONAL CONVENTIONS.

The Republican and Democratic conventions for the nomination of candidates for the Presidency and Vice-presidency of the United States were remarkable in that both bodies were dominated by the candidacy of a single man, of whose nomination there was at no time in the proceedings any doubt. The results of the State conventions, previous to the national convention, had assured William H. Taft an overwhelming majority of the Republican votes, and the half-hearted campaigns carried on in behalf of Governor Charles E. Hughes of New York, Philander C. Knox, of Pennsylvania, Senator Joseph B. Foraker, of Ohio, and others, had not availed to present an opposition of any strength to his nomination.

The Democratic Convention was committed to William J. Bryan even more certainly than the Republican Convention to Judge Taft. Whatever opposition had arisen to his nomination had its rise in the East, and even there it was lacking in strength and conviction. The candidacy of Governor John A. Johnson, of Minnesota, which seemed, for a month previous to the Convention, to have some strength and vitality, lost this before the convention was convened.

Another notable and significant feature of both conventions was the lack of influence shown by the delegates from New York. In the Republican Convention, a portion of the New York delegation was committed to Governor Hughes, but there was no enthusiasm for him and the part taken by this delegation in the labors of the convention was practically nil. In the Democratic Convention, the New York delegation was nominally committed to Mr. Bryan, but there was little enthusiasm for him and the delegates were practically spectators throughout the proceedings. Judge Alton B. Parker, it is true, was temporarily conspicuous from his attempt, first in vain, and finally successful, to read resolutions of respect to the memory of the late Grover Cleveland. But aside from this, the New York delegates took practically no part in the convention except voting for Mr. Bryan when votes were called for.

REPUBLICAN CONVENTION. The Republican National Convention convened at the Coliseum in Chicago on June 16. As indicated in the paragraph above, an overwhelming majority of the delegates were pledged, before the Convention assembled, to the nomination of William H. Taft. There was a certain attempt at opposition on the

part of the adherents of Governor Hughes of New York, Senator Knox of Pennsylvania, Joseph G. Cannon of Illinois, Vice-president Fairbanks of Indiana, and Senator La Follette of Wisconsin. But in spite of this apparent overwhelming sentiment for Mr. Taft, his managers were somewhat apprehensive until the contests between the rival delegations from the Southern States had been settled. A temporary roster of the convention is made up by the Republican National Committee, which is composed of one member from each State. This committee met in Chicago several times before the opening of the convention to determine the contests over seats. Two hundred and twenty-three seats were involved, and if the National Committee had been controlled by the opponents of Mr. Taft, and had been disposed to take advantage of this opportunity, an absolute Taft majority might conceivably have been prevented. The committee, however, decided the contests almost without exception in favor of Mr. Taft, and this practical unanimity and the machine-like precision with which the contests were settled won for the Committee, and especially for its chairman, Frank H. Hitchcock, the sobriquet of the "steam roller." Senator Julius C. Burrows, of Michigan, was temporary chairman of the Convention and Senator Henry Cabot Lodge, of Massachusetts, permanent chairman; Senator Albert J. Hopkins, of Illinois, was chairman of the Committee on Resolutions, and Senator Fulton, of Oregon, chairman of the Committee on Credentials.

It was obvious, after the question of credentials had been determined, that Mr. Taft's nomination was assured unless something extraordinary took place. This extraordinary happening, in the opinion of a considerable number of the delegates and of many people throughout the country, was a stampede to nominate President Roosevelt for a third term, in spite of his often repeated and emphatic assertion that he would not serve. It was, therefore, the chief effort of the Taft supporters at this stage of the Convention to keep the situation in hand and expedite business up to the time of the presenting of the candidates and the taking of the first ballot. There was threatened delay by a possible difficulty in agreeing about details of the resolutions to be adopted as the party's platform for the campaign. These platforms are usually discussed in first draft by the sub-committee on Resolutions, and afterwards by the full committee. In the case of this platform, a draft was brought to Chicago by Mr. Wade H. Ellis, Attorney-General of Ohio. It had been approved by Judge Taft, and had been submitted to President Roosevelt, who had read it with approval. The plank in this platform which caused the difficulty was the so-called "injunction plank," which had to do with the defining or limiting of the power of the Federal Courts to issue writs of injunction. The plank as it stood in the original draft of the platform was mild in form and had been declared by lawyers and judges in no way objectionable. A number of the delegates, however, objected to even a mild form of criticism of the judiciary, and hostility developed toward the adoption of this plank in the platform. The situation was further complicated by the fact that the demand for the regulation of the use of the injunction came almost wholly from the leaders of organized labor, while the Manufacturers' Association, representing the largest manufacturing industries of the country, was determined

that the platform should contain no allusion to the subject of injunctions. A compromise was finally agreed upon and accepted by the Platform Committee, the administration leaders at Washington, and the Convention itself. This plank will be found in the section *Platforms*. It may be compared with the plank originally brought before the Committee on Resolutions, which was as follows: "We declare for such amendments to the statutes of procedure in the Federal Courts, with respect to the use of the writ of injunction as will, on the one hand, prevent the summary issue of such orders without proper consideration, and on the other, will preserve undiminished the power of the courts to enforce their process, to the end that justice may be done at all times and to all parties." (See *INJUNCTIONS*.) The platform was accepted, as finally framed by the Committee on Resolutions, by all the delegates excepting the Wisconsin delegation. This delegation had come to the Convention to present the candidacy of Senator La Follette, and had prepared in advance a strong platform which went into much greater detail respecting railroad regulation, trusts, and other economic and political questions than the platform favored by the majority. Several of these proposals were voted upon separately, among others, the demand for publicity for campaign contributions, and the resolution calling for a physical valuation of all railroad properties as the basis for the fixing of just rates, and the plank calling for the direct election of the United States Senators. These proposals received votes of the delegates from other States than Wisconsin, but they lacked the necessary number for their incorporation into the national platform.

As the time approached for the nomination of the candidate for the presidency, it was apparent to all impartial observers that the fear of a stampede to President Roosevelt was ill-founded, and in spite of attempts made to start such a movement by spectators in the galleries, the Convention was at no time in any danger of being carried off its feet. Had there been foundation for such a movement, it would have been effectually quelled by the assertion of Senator Lodge in his speech as permanent chairman: "That man is no friend of Theodore Roosevelt and does not cherish his name and fame who now, from any motive, seeks to urge him as a candidate for the great office which he has finally declined. The President refused what his countrymen would gladly have given him: he says what he means and means what he says, and his party and his country will respect his wishes as they value his high character and great public service." On the first ballot William Howard Taft received 702 out of the total 990 votes; Knox, 68; Hughes, 67; Cannon, 58; Fairbanks, 40; La Follette, 25; and Foraker, 16. The nomination was immediately made unanimous.

Several candidates were put forward for the Vice-presidency. Among the most prominent were: Governor Curtis Guild, Jr., of Massachusetts, Ex-Governor Franklin Murphy, of New Jersey, and Senator Jonathan P. Dolliver, of Iowa. It was generally admitted, however, that New York could have the place if its discordant delegates could agree upon a candidate. This was especially desirable on account of the importance of the electoral votes of New York in the election. An agreement was reached between these delegates at the last moment, and Represent-

tative James Schoolcraft Sherman, for many years a member of Congress, of New York, was put forward as a candidate. Mr. Sherman received 816 votes on the first ballot. His nomination practically concluded the business of the convention, which, after passing the usual routine resolutions, adjourned.

THE DEMOCRATIC NATIONAL CONVENTION. The Democratic National Convention met at Denver on July 7th. As stated in the initial paragraph of this section, the convention, from the beginning, was dominated by the personality of William J. Bryan, to whom the delegates, except a negligible minority, were committed before the convention assembled. A significant feature was the domination of the proceedings by the delegates of the States of the Mississippi Valley. The Pacific States acted in cordial alliance with these, as did the delegates from the South, and the Southern and Western character of the gathering was conspicuous throughout the proceedings. The only opposition shown to Mr. Bryan was on the part of the delegates from Pennsylvania, the majority of whom, under the leadership of Col. J. M. Guffey, the National Committeeman, had refused to declare for Mr. Bryan in the State Convention. In the contest which took place for the seating of these delegates in the national convention, they were unceremoniously thrust out and the contesting delegates who had declared for Mr. Bryan were seated. Following the action of the convention in regard to the Pennsylvania delegates, Col. Guffey made a violent personal attack on Mr. Bryan, charging him with double dealing, party tyranny, and secret seeking of money support from corporations. This attack, however, was ignored by the convention and had no effect except to draw from Mr. Bryan a vigorous defense. The contest in the New York delegation between Patrick H. McCarren, the leader of the Brooklyn Democrats, and Charles F. Murphy, leader of Tammany Hall, resulted in the defeat of McCarren and his delegates, who were not allowed to sit in the convention.

A delay was caused by the long continued labor of the Platform Committee, which had difficulty in fixing upon the final form of several of the planks. The greatest difficulty was in the preparation of the labor plank, and Samuel Gompers, President of the American Federation of Labor, was successful in having included a drastic declaration in favor of the regulation of injunctions by federal judges. The form of this declaration will be found in the section *Platforms*. See *INJUNCTIONS*.

The temporary chairman of the convention was Theodore A. Bell of California, while the permanent chairman was H. T. Clayton of Alabama. After the routine business of the organization of the convention on the first day of its session, ex-Judge Alton B. Parker, the head of the New York delegation, demanded recognition from the chair. It had long been known that Judge

Parker had prepared resolutions of respect to the memory of the late ex-President Cleveland, and there had been much speculation as to whether he would be permitted to read them to the convention in their original form, in the light of Mr. Bryan's antagonism to Mr. Cleveland, and their differing opinions as to the policies of the Democratic party. The chairman of the convention refused to recognize Judge Parker, but recognized instead Ignatius J. Dunn, of Nebraska, who, it was known, had also prepared resolutions of respect to the memory of Mr. Cleveland more in harmony with the spirit of the convention. Judge Parker resumed his seat and the resolutions prepared by Mr. Dunn were read. A eulogy on Mr. Cleveland was pronounced by David R. Francis from Missouri, and following this, cries were raised for Parker. As these became more insistent, he was finally recognized by the chairman of the convention and, after further persuasion, he went to the platform and read the resolutions which he had prepared. They were much warmer and more eulogistic in tone than the resolutions read by Mr. Dunn. The latter resolutions, which had been seconded by Governor Haskell, of Oklahoma, were adopted unanimously by a rising vote. The speech of the temporary chairman, Theodore A. Bell, of California, was devoted largely to an attack upon the Republican platform and to an exposition of the measures to be included in the Democratic platform. Henry T. Clayton, permanent chairman, made an address of similar tenor. The Platform Committee delayed so long in preparing and bringing in its report that the nominating speeches were delivered prior to the reading of the platform. William J. Bryan, of Nebraska, was placed in nomination by Ignatius J. Dunn of that State, and his name was received with one of the most remarkable demonstrations that ever occurred in a National Convention. Delegates and on-lookers applauded vociferously for more than an hour. Gov. John A. Johnson, of Minnesota, and Judge George Gray, of Delaware, were also placed in nomination, but their names were greeted with only perfunctory applause. At the conclusion of the nominating speeches, the platform was adopted without opposition, and on July 10 at three o'clock in the morning, the first ballot was taken, giving Bryan 892½ votes, Johnson 46 and Gray 59½. The nomination of Mr. Bryan was then made unanimous. In the evening session of the same day, John W. Kern, of Indiana, was nominated for Vice-President.

DEMOCRATIC AND REPUBLICAN PLATFORMS.

The main planks of the Republican and Democratic national platforms are set forth opposite each other in order to bring out distinctly the points of difference. The Republican platform is given on the right hand column, and the Democratic on the left.

TARIFF.

We welcome the belated promise of tariff reform now offered by the Republican party in tardy recognition of the righteousness of the Democratic position on this question; but the people can not safely entrust the execution of this important work to a party which is so deeply obligated to the highly protected interests as is the Republican party. We call attention

The Republican party declares unequivocally for a revision of the tariff by a special session of Congress immediately following the inauguration of the next President and commends the steps already taken to this end in the work assigned to the appropriate committees of Congress which are now investigating the operation and effect of existing schedules. In all tariff

to the significant fact that the promised relief was postponed until after the coming election—an election to succeed in which the Republican party must have the same support from the beneficiaries of the high protective tariff as it has always heretofore received from them; and to the further fact that during years of uninterrupted power, no action whatever has been taken by the Republican Congress to correct the admittedly existing tariff iniquities.

We favor immediate revision of the tariff by the reduction of import duties. Articles entering into competition with trust-controlled products should be placed upon the free list and material reductions should be made in the tariff upon the necessities of life, especially upon articles competing with such American manufactures as are sold abroad more cheaply than at home; and graduate reductions should be made in such other schedules as may be necessary to restore the tariff to a revenue basis.

We demand the immediate repeal of the tariff on wood pulp, print paper, lumber, timber, and logs, and that these articles be placed upon the free list.

CURRENCY.

The panic of 1907, coming without any legitimate excuse, when the Republican party had for a decade been in complete control of the federal government, furnishes additional proof that it is either unwilling or incompetent to protect the interests of the general public. It has so linked the country to Wall Street that the sins of the speculators are visited upon the whole people. While refusing to rescue the wealth producers from spoliation at the hands of the stock gamblers and speculators in farm products, it has deposited treasury funds, without interest and without competition, in favorite banks. It has used an emergency for which it is largely responsible to force through Congress a bill changing the basis of bank currency and inviting market manipulation, and has failed to give to the 15,000,000 depositors of the country protection in their savings.

We believe that in so far as the needs of commerce require an emergency currency, such currency should be issued, controlled by the Federal government and loaned, on adequate security, to national and State banks. We pledge ourselves to legislation under which national banks shall be required to establish a guarantee fund for the prompt payment of the deposits of any insolvent national bank under an equitable system which shall be available to all State banking institutions wishing to use it.

POSTAL SAVINGS BANKS.

We favor a postal savings bank if the guaranteed bank cannot be secured, and that it be so constituted as to keep the deposited money in the communities where it is established. But we condemn the policy of the Republican party in proposing postal savings banks under a plan of conduct by which they will aggregate the deposits of rural communities and redeposit the same while under government charge in the banks of Wall Street, thus depleting the circulating medium of the producing regions and unjustly favoring the speculative markets.

legislation the true principle of protection is best maintained by the imposition of such duties as will equal the difference between the cost of production at home and abroad, together with a reasonable profit to American industries.

We favor the establishment of maximum and minimum rates to be administered by the President under limitations fixed in the law, the maximum to be available to meet discriminations by foreign countries against American goods entering their markets and the minimum to represent the normal measure of protection at home; the aim and purpose of the Republican policy being not only to preserve, without excessive duties, that security against foreign competition to which American manufacturers, farmers, and producers are entitled, but also to maintain the high standard of living of the wage-earners of this country, who are the most direct beneficiaries of the protective system.

Between the United States and the Philippines we believe in a free interchange of products, with such limitations as to sugar and tobacco as will afford adequate protection to domestic interests.

We approve of the emergency measures adopted by the government during the recent financial disturbances and especially commend the passage by Congress at the last session of the law designed to protect the country from a repetition of such stringency. The Republican party is committed to the development of a permanent currency system, responding to our greatest needs, and the appointment of the national monetary commission by the present Congress which will impartially investigate all proposed methods insures the early realization of this purpose. The present currency laws have fully justified their adoption, but an expanding commerce, a marvelous growth in wealth and population, multiplying the centres of distribution, increasing the demand for movement of crops in the West and South and entailing periodic changes in monetary conditions, disclose the need of a more elastic and adaptable system. Such a system must meet the requirements of agriculturists, manufacturers, merchants, and business generally; must be automatic in operation, minimizing the fluctuations in interest rates, and above all, must be in harmony with the Republican doctrine which insists that every dollar shall be based upon and as good as gold.

We favor the establishment of a postal savings bank system for the convenience of the people and the encouragement of thrift.

TRUSTS.

A private monopoly is indefensible and intolerable. We therefore, favor the vigorous reform of the criminal law against guilty trust magnates and officials, and demand the enactment of such additional legislation as may be necessary to make it impossible for a private monopoly to exist in the United States. Among the additional remedies, we specify three: First, a law preventing a duplication of directors among competing corporations; Second, a license system which will, without abridging the right of each State to create corporations, or its right to regulate as it will foreign corporations doing business within its limits, make it necessary for a manufacturing or trading corporation engaged in interstate commerce to take out a Federal license before it shall be permitted to control as much as twenty-five per cent. of the product in which it deals, the license to protect the public from watered stock and to prohibit the control of such corporation of more than fifty per cent. of the total amount of any product consumed in the United States; and, third, a law compelling such licensed corporations to sell to all purchasers in all parts of the country on the same terms, after making due allowance for the cost of transportation.

The Republican party passed the Sherman anti-trust law over Democratic opposition and enforced it after Democratic dereliction. It has been a wholesome instrument for good in the hands of wise and fearless administration. But experience has shown that its effectiveness can be strengthened and its real objects better attained by such amendments as will give to the federal government greater supervision and control over and secure greater publicity in the management of that class of corporations engaged in interstate commerce, having power and opportunity to effect monopolies.

RAILROADS.

We assert the right of Congress to exercise complete control over interstate commerce and the right of each state to exercise control over commerce within its borders.

We demand such enlargement of the powers of the Interstate Commerce Commission as may be necessary to compel railroads to perform their duties as common carriers and prevent discrimination and extortion.

We favor the efficient supervision and rate regulation of railroads engaged in interstate commerce. To this end we recommend the valuation of railroads by the Interstate Commerce Commission, such valuation to take into consideration the physical value of the property, the original cost of production, and all elements of value that will render the valuation made fair and just.

We favor such legislation as will prohibit the railroads from engaging in business which brings them into competition with their shippers; also legislation which will prevent the over-issue of stocks and bonds; also legislation which will assure such reduction in transportation rates as conditions will permit; * * *

We favor such legislation as will increase the power of the Interstate Commerce Commission, giving to it the initiative with reference to State and transportation charges put into effect by the railroad companies, and permitting the Interstate Commerce Commission, on its own initiative, to declare a rate illegal and as being more than should be charged for such service. * * *

We favor the enactment of a law giving to the Interstate Commerce Commission the power to inspect proposed railroad tariff rates or schedules before they shall take effect, and, if they be found unreasonable, to initiate an adjustment thereof.

We approve the enactment of the railroad law and the vigorous enforcement by the present administration of the statutes against rebates and discriminations, as a result of which the advantages formerly possessed by the large shipper over the small shipper have substantially disappeared; and in this connection we commend the appropriation by the present Congress to enable the Interstate Commerce Commission to thoroughly investigate and give publicity to the accounts of interstate railroads.

We believe, however, that the interstate commerce law should be further amended so as to give railroads the right to make and publish tariff agreements subject to the approval of the commission, but maintaining always the principle of competition between naturally competing lines and avoiding the common control of such lines by any means whatsoever.

We favor such national legislation and supervision as will prevent the future over-issue of stocks and bonds by interstate carriers.

INJUNCTIONS.

The courts of justice are the bulwark of our liberties, and we yield to none in our purpose to maintain their dignity. Our party has given to the bench a long line of distinguished judges, who have added to the respect and confidence in which this department must be jealously maintained. We resent the attempt of the Republican party to raise a false issue respecting the judiciary. It is an unjust reflection upon a great body of our citizens to assume that they lack respect for the courts. * * * Experience has proved the necessity of a modification of the present law relating to injunctions, and we reiterate the pledge of our national platforms of 1896 and 1904 in favor of the measure which passed the United States Senate in 1896, but which a Republican Congress has ever since refused to enact, relating to contempts in Federal Courts and providing for trial by jury in cases of indirect contempt. Questions of judicial practice have arisen especially in connection with industrial disputes. We deem that the parties to all judicial proceedings should be treated with rigid impartiality, and that injunctions should not be issued in any cases in which injunctions would not issue if no industrial dispute were involved. The expanding organization of industry makes it essential that there should be no abridgement of the right of wage earners and producers to organize for the protection of wages and the improvement of labor conditions, to the end that such labor organizations and their members should not be regarded as illegal combinations in restraint of trade. * * *

Among the planks incorporated in the Democratic platform the following dealt with subjects not treated in the Republican platform: The party pledged itself to legislation under which national banks should be required to establish a guarantee fund for the prompt payment of deposits of any insolvent national bank (see BANKS AND BANKING). Criticism was made of the increased expenditure for federal office-holders; of the "arbitrary power" of the Speaker of the House of Representatives, and the "misuse of power" by the Executive "in using the patronage of his high office to secure the nomination of one of his cabinet officers." A demand was made for the publicity of the campaign expenditures. A plank was inserted asserting the principle of "State rights," and opposing the "centralization" of government. The party pledged itself "to insist upon the just and lawful protection of our citizens at home and abroad." The exclusion of Asiatic immigrants was advocated.

The Republican platform contained, among others, the following planks dealing with subjects not included in the Democratic platform: A plank was inserted urging the importance of efforts to upbuild rural communities by the construction of roads, extension of rural free delivery, and other means. A demand was made for the preservation of the rights of the negro and for the enforcement of the Thirteenth, Fourteenth, and Fifteenth Amendments to the Constitution. The arbitration conventions concluded in consonance with the declarations of the conference on international arbitration at The Hague were endorsed, and the general principle of arbitration was cordially praised. The establishment of a national bureau of mines and

The Republican Party will uphold at all times the authority and integrity of the courts, State and Federal, and will ever insist that their powers to enforce their process and to protect life, liberty, and property shall be preserved inviolate. We believe, however, that the rules of procedure in the Federal Courts with respect to the issuance of the writ of injunction should be more accurately defined by statute, and that no injunction or temporary restraining order should be issued without notice, except where irreparable injury would result from delay, in which case a speedy hearing thereafter should be granted.

mining was advocated. The recommendation was made that the centennial anniversary of the birth of Lincoln be celebrated throughout the country.

OTHER CONVENTIONS AND PLATFORMS

INDEPENDENCE PARTY. This party, which is the successor of the Independence League, organized in 1906 by William R. Hearst, held its convention in Chicago, and on July 28 nominated Thomas L. Hisgen of Massachusetts for president, and John Temple Graves of Georgia for vice president. Following are the leading planks in the platforms adopted:

As of first importance, in order to restore the power of government to the people, to make their will supreme in the primaries, in the elections, and in the control of public officials after they have been elected, we declare for direct nominations, the initiative and referendum, and the right of recall. * * * We demand the natural remedy of direct nominations by which the people not only elect, but, what is far more important, select their representatives.

We believe in the principle of the initiative and referendum, and we particularly demand that no franchise grant go into operation until the terms and conditions have been approved by popular vote in the locality interested.

We demand for the people the right to recall public officials from the public service. The power to make officials resides in the people, and in them also should reside the power to unmake and remove from office any official who demonstrates his unfitness or betrays the public trust.

We demand severe and effective legislation against all forms of corrupt practices at elec-

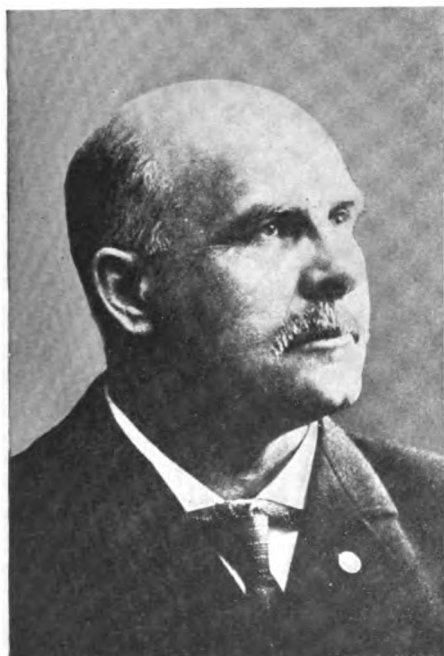


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EUGENE V. DEBS



THOMAS L. HISGEN



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EUGENE W. CHAFIN



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THOMAS E. WATSON

FOUR CANDIDATES FOR THE PRESIDENCY IN 1908

tions and advocate prohibiting the use of any money at elections except for meetings, literature, and the necessary traveling expenses of candidates. * * * * *

We denounce the so-called labor planks of the Republican and Democratic platforms as political buncombe and contemptible claptrap unworthy of national parties claiming to be serious and sincere. * * * * *

The Independence Party condemns the arbitrary use of the writ of injunction and contempt proceedings as a violation of the fundamental American right of trial by jury.

We declare for a gradual reduction of tariff duties with just consideration for the rights of the consuming public and of established industry.

The railroads must be kept open to all upon exactly equal terms. Every form of rebate and discrimination in railroad rates is a crime against business and must be stamped out.

We demand adequate railroad facilities and advocate a bill empowering shippers in time of need to compel railroads to provide sufficient cars for freight and passenger traffic and other railroad facilities through summary appeal to the courts.

We favor the creation of an interstate commerce court, whose sole function it shall be to review speedily and enforce summarily the orders of the interstate commerce commission.

The interstate commerce commission should have the power to initiate investigation into the reasonableness of rates and practices, and no increase in rates should be put into effect until opportunity for such investigation is afforded. The interstate commerce commission should proceed at once with a physical valuation of railroads engaged in interstate commerce.

We denounce all combinations for restraint of trade and for the establishment of monopoly in all products of labor and declare that such combinations are not combinations for production but for extortion, and that activity in this direction is not industry but robbery.

In cases of infractions of the anti-trust law of the interstate commerce act, we believe in the enforcement of a prison penalty against the guilty and responsible individuals controlling the management of the offending corporations rather than a fine imposed upon stockholders.

We advocate the extension of the principle of public ownership of public utilities, including railroads and telegraphs, as rapidly as municipal, state, or national government shall demonstrate ability to conduct public utilities for the public benefit.

We favor specifically government ownership of the telegraphs, such as prevails in every other civilized country in the world, and demand as an immediate measure that the government shall purchase and operate the telegraphs in connection with the postal service.

SOCIALIST PARTY. This party held its convention in Chicago, and on May 13 nominated Eugene V. Debs of Indiana for President, and Benjamin Hanford of New York for Vice-President. The platform adopted was as follows:

1. The immediate government relief for the unemployed workers by building schools, by reforesting cut-over and waste lands, by reclamation of arid tracts and the building of canals, and by extending all other useful public

works. All persons employed on such works shall be employed directly by the government under an eight-hour work day and at the prevailing union wages. The government shall also loan money to States and municipalities without interest for the purpose of carrying on public works. It shall contribute to the funds of labor organizations for the purpose of assisting their unemployed members, and shall take such other measures within its power as will lessen the widespread misery of the workers caused by the misrule of the capitalist class.

2. The collective ownership of railroads, telegraphs, telephones, steamship lines, and all other means of social transportation and communication, and all land.

3. The collective ownership of all industries which are organized on a national scale and in which competition has virtually ceased to exist.

4. The extension of the public domain to include mines, quarries, oil wells, forests, and water-power.

5. The scientific reforestation of timber lands, and the reclamation of swamp lands; the land to be reforested or reclaimed to be permanently retained as a part of the public domain.

6. The absolute freedom of press, speech, and assemblage.

DEMANDS.

7. The improvement of the industrial conditions of the workers:

(a) By shortening the workday in keeping with the increased productiveness of machinery.

(b) By securing to every worker a rest period of not less than a day and half each week.

(c) By securing a more effective inspection of workshops and factories.

(d) By forbidding the employment of children under sixteen years of age.

(e) By forbidding the interstate transportation of the products of child labor, of convict labor, and all uninspected factories.

(f) By abolishing official charity and substituting in its place compulsory insurance against unemployment, illness, accidents, invalidism, old age, and death.

8. The extension of inheritance taxes, graduated in proportion to the amount of the bequests and to the nearness of kin.

9. A graduated income tax.

10. Unrestricted and equal suffrage for men and women, and we pledge ourselves to engage in an active campaign in that direction.

11. The initiative and referendum, proportional representation, and the right of recall.

12. The abolition of the Senate.

13. The abolition of the power usurped by the Supreme Court of the United States to pass upon the constitutionality of legislation enacted by Congress. National laws to be repealed or abrogated only by an act of Congress or by referendum of the whole people.

14. The abolition of the veto power of the President.

15. That the Constitution be made amendable by majority vote.

16. The enactment of further measures for general education and for the conservation of health. The Bureau of Education to be made a department. The creation of a department of public health.

17. The separation of the present Bureau of Labor from the Department of Commerce and Labor, and the establishment of a department of labor.

18. That all judges be selected by the people for short terms, and that the power to issue injunctions should be curbed by immediate legislation.

19. The free administration of justice.

PROHIBITION PARTY. The Prohibition Party held its convention at Columbus, Ohio, and on July 16 nominated Eugene W. Chafin of Illinois for president, and Aaron S. Watkins of Ohio for vice-president. The platform, which was the briefest in form of any adopted by the parties, was as follows:

The Prohibition Party of the United States, assembled in convention at Columbus, Ohio, July 15-16, 1908, expressing gratitude to Almighty God for the victories of our principles in the past, for encouragement at present, and for confidence in early and triumphant success in the future, makes the following declaration of principles and pledges their enactment into law when placed in power:

1. The submission by Congress to the several States of an amendment to the Federal constitution prohibiting the manufacture, sale, importation, exportation, or transportation of alcoholic liquors for beverage purposes.

2. The immediate prohibition of the liquor traffic for beverage purposes in the District of Columbia, in the Territories, and all places over which the National government has jurisdiction; the repeal of the internal revenue tax on alcoholic liquors and the prohibition of interstate traffic therein.

3. The election of United States senators by direct vote of the people.

4. Equitable graduated income and inheritance taxes.

5. The establishment of postal savings banks and the guaranty of deposits in banks.

6. The regulation of all corporations doing an interstate commerce business.

7. The creation of permanent tariff commissions.

8. The strict enforcement of law instead of official tolerance and practical license of the social evil which prevails in many of our cities, with its unspeakable traffic in girls.

9. Uniform marriage and divorce laws.

10. An equitable and constitutional employers' liability act.

11. Court review of post-office department decisions.

12. The prohibition of child labor in mines, workshops, and factories.

13. Legislation basing suffrage only upon intelligence and ability to read and write the English language.

14. The preservation of the mineral and forest resources of the country and the improvement of the highways and waterways.

Believing in the righteousness of our cause and in the final triumph of our principles and convinced of the unwillingness of the Republican and Democratic parties to deal with these issues, we invite to full party fellowship all citizens who are with us agreed.

MINOR CONVENTIONS AND PLATFORMS. The Populist Party held its convention at St. Louis, and on April 3 nominated Thomas E. Watson

of Georgia for President, and Samuel W. Williams of Indiana for Vice-President.

Much consideration is given in the platform adopted to the money plank, which declares that the issuing of money is a function of the government alone.

The demand is made that money be issued direct to the people and be full legal tender for all debts, public and private, and that the power to issue it be taken from the banks. The Aldrich and Fowler bills are denounced.

The platform demands government ownership of railroads and public utilities, favors the initiative and referendum, the abolition of child and convict labor, the exclusion of foreign pauper labor, an eight hour work day, the adoption of precautionary measures to prevent mining disasters, work on public improvements in times of depression for the unemployed, and a law prohibiting courts from assuming jurisdiction involving the constitutionality of any law enacted by Congress and approved by the President.

The Socialist Labor Party held its convention in New York City, and on July 6 nominated Martin R. Preston of Nevada for president and Donald Munro of Virginia for vice-president. Preston is a prisoner in the Nevada State Prison, serving a term of twenty-five years for the killing of a man in 1905. He declined to accept the nomination, and his name was removed from the ticket. August Gilhaus of New York was substituted as proxy for M. R. Preston.

CAMPAIGN ISSUES.

It is probable that no political campaign in the history of the country has been more devoid of great issues on which the parties were squarely divided than the campaign of 1908. As a matter of fact, the chief question at issue was the personal preference of the voters for Mr. Taft or Mr. Bryan. Issues involving foreign affairs were entirely absent. It is true that certain questions were discussed by the candidates at great length, as the tariff, the trusts, the guarantee of bank deposits, and the labor question, but there was no sharp line of cleavage which marked any of these questions as strong party issues. Mr. Bryan's attempt to make a national issue out of the proposal to guarantee bank deposits met with little public interest, save in the West, where certain States were considering, or had already adopted a system of bank guarantee. Finance in its larger aspects of banking and currency reform had no part in the discussion of the campaign. The question coming nearest, in the discussion of the candidates, to an issue of national importance was the relatively unimportant one relating to the issuing of injunctions in labor cases, and even this roused interest among a relatively small part of the people. For our purposes, however, it may be assumed that the issues of the campaign were the more important planks of the party platforms, and these, as interpreted by the speeches of the candidates, will be discussed as the issues of the campaign. These questions were the tariff, trusts, railway regulation, injunctions, and the guarantee of bank deposits. On these questions was laid most of the stress of the rival candidates in their campaign speeches. The following excerpts from the letters of acceptance of the Republican and Democratic candidates will convey, in a measure, the opinion of each as to

the general issues and meaning of the campaign. In his speech of acceptance at Cincinnati on July 28 Mr. Taft outlined the general meaning of the campaign as it appeared to him as follows:

"The strength of the Republican cause in the campaign at hand is in the fact that we represent the policies essential to the reform of known abuses, to the continuance of liberty and true prosperity, and that we are determined, as our platform unequivocally declares, to maintain them and carry them on. For more than ten years this country passed through an epoch of material development far beyond any that ever occurred in the world before. In its course certain evils crept in. Some prominent and influential members of the community, spurred by financial success and in their hurry for greater wealth, became unmindful of the common rules of business honesty and fidelity and of the limitations imposed by law upon their actions. This became known. The revelations of the breaches of trust, the disclosures as to rebates, and discriminations by railways, the accumulating evidence of the violation of the anti-trust law by a number of corporations, the overissue of stocks and bonds on interstate railways for the unlawful enriching of directors and for the purpose of concentrating control of railways in one management, all quickened the conscience of the people, and brought on a moral awakening among them that boded well for the future of the country. * * * * *

"The chief function of the next Administration, in my judgment, is distinct from, and a progressive development of, that which has been performed by President Roosevelt. The chief function of the next Administration is to complete and perfect the machinery by which these standards may be maintained, by which the lawbreakers may be promptly restrained and punished, but which shall operate with sufficient accuracy and dispatch to interfere with legitimate business as little as possible."

On August 12, at Indianapolis, Mr. Bryan in his speech accepting the nomination replied in a measure to Mr. Taft, and outlined the significance of the campaign as it appeared to him as follows:

"The distinguished statesman who received the Republican nomination for President said, in his notification speech: 'The strength of the Republican cause in the campaign at hand is the fact that we represent the policies essential to the reform of known abuses, to the continuance of liberty and true prosperity, and that we are determined, as our platform unequivocally declares, to maintain them and carry them on.'

"In the name of the Democratic party, I accept the challenge, and charge that the Republican party is responsible for all the abuses which now exist in the Federal Government, and that it is impotent to accomplish the reforms which are imperatively needed. Further, I can not concur in the statement that the Republican platform unequivocally declares for the reforms that are necessary; on the contrary, I affirm that it openly and notoriously disappoints the hopes and expectations of reformers, whether those reformers be Republicans or Democrats. So far did the Republican Convention fall short of its duty that the Republican candidate felt it necessary to add to his platform in several important particu-

lars, thus rebuking the leaders of the party, upon whose coöperation he relies.

"Our platform declares that the overshadowing issue which manifests itself in all the questions now under discussion, 'Shall the people rule.' No matter which way we turn; no matter to what subject we address ourselves, the same question confronts us: Shall the people control their own government, and use that government for the protection of their rights and for the promotion of their welfare? or shall the representatives of predatory wealth prey upon a defenseless public, while the offenders secure immunity from subservient officials whom they raise to power by unscrupulous methods? This is the issue raised by the 'known abuses' to which Mr. Taft refers."

Mr. Bryan in his speech of acceptance declared himself bound by the party platform in the discussions which he would make during the campaign, and that no questions which were not included in the platform would receive attention from him. This was taken by Mr. Taft and other Republican campaign speakers to mean that Mr. Bryan did not care to have the measures which he had advocated in his previous campaigns, and which had ceased to become matters of general interest or had been decisively defeated by the people, matters of discussion. These included free silver, government ownership of railroads, and anti-Imperialism, all of which at one time or another had been matters warmly advocated by Mr. Bryan. In spite of the efforts of the Republican campaigners, Mr. Bryan was not drawn out on these subjects and limited his addresses, in accordance with his declaration, to the questions treated in the Democratic platform.

THE TARIFF ISSUE. Many able and intelligent speeches were made on the tariff question by Mr. Taft and Mr. Bryan during the campaign, but it did not present itself as a squarely drawn issue between the parties. The fact that both platforms advocated a revision, the difference being practically only in degree, made it impossible that sharply divergent lines should be drawn. In his speech of acceptance Mr. Taft outlined his views on the subject as follows:

"The Republican doctrine of protection, as definitely announced by the Republican convention of this year and by previous conventions, is that a tariff shall be imposed on all imported products, whether of the factory, farm, or mine, sufficiently great to equal the difference between the cost of production abroad and at home, and that this difference should, of course, include the difference between the higher wages paid in this country and the wages paid abroad and embrace a reasonable profit to the American producer. A system of protection thus adopted and put in force has led to the establishment of a rate of wages here that has greatly enhanced the standard of living of the laboring man. It is the policy of the Republican party permanently to continue that standard of living. In 1897 the Dingley tariff bill was passed, under which we have had, as already said, a period of enormous prosperity.

"The consequent material development has greatly changed the conditions under which many articles described by the schedules of the tariff are now produced. The tariff in a number of the schedules exceeds the difference between the cost of production of such articles

abroad and at home, including a reasonable profit to the American producer. The excess over that difference serves no useful purpose, but offers a temptation to those who would monopolize the production and the sale of such articles in this country to profit by the excessive rate. On the other hand, there are some few other schedules in which the tariff is not sufficiently high to give the measure of protection which they should receive upon Republican principles, and as to those the tariff should be raised. A revision of the tariff undertaken upon this principle, which is at the basis of our present business system, begun promptly upon the incoming of the new Administration and considered at a special session with the preliminary investigations already begun by the appropriate committees of the House and Senate, will make the disturbance of business incident to such a change as little as possible."

At Des Moines, Iowa, August 21, Mr. Bryan delivered a speech devoted entirely to the tariff question. The general tendency of his opinions may be seen in the following extract:

"The Democratic plan does not contemplate an immediate change from one system to the other; it expressly declares that the change shall be gradual, and a gradual change is only possible where the country is satisfied with the results of each step taken. We elect a Congress every two years and a President every four years, and the people can soon stop any policy if the results of that policy are not satisfactory. But we believe that the experience the people have had with 'protection for protection's sake' has led them to favor a restoration of the tariff by gradual steps to a revenue basis, and we are convinced that the advantages following each step will be so pronounced and that the benefits will be so universally enjoyed that there will be no pause in the progress toward a system under which the tariff will be levied for the purpose of revenue and limited to the needs of the government. The low tariff law of 1846 did not produce a panic. On the contrary, it was so satisfactory that when the Republican party wrote its first platform ten years afterward the protection principle was not endorsed.

"The Democratic party has declared for an income tax as a part of the revenue system, and for a constitutional amendment as a means of securing this tax. Secretary Taft announces in his notification speech that he is in favor of an income tax whenever the revenues are so low as to require it, and expresses his belief that it is possible to secure such a tax without a constitutional amendment. If it is possible to frame a law which will avoid the objections raised to the income tax law of 1894, well and good, but that is uncertain. If an income tax is desirable, surely Secretary Taft cannot consistently oppose the adoption of a constitutional amendment. If the principle is right and the tax wise, Congress ought to have authority to levy and collect such a tax, and no supporter of Secretary Taft can oppose our position without dissenting from the Republican candidate."

Aside from this formal treatment, the discussion of the tariff by Mr. Bryan during the remainder of the campaign was largely perfunctory.

THE TRUST ISSUE. The issue of the regulation of trusts received hardly more attention as a party issue than the tariff. Both the candidates advocated some sort of regulation, but

their discussion was largely academic and did not arouse enthusiasm. Mr. Taft, in his speech of acceptance, advocated amendments to the Anti-Trust Law and strongly attacked that part of the plank of the Democratic platform, which suggested that corporations should be forbidden to hold more than 50 per cent. of the plant in any line of manufacture. In regard to the regulation of unlawful trusts, he spoke as follows: "Unlawful trusts should be restricted with all efficiency of injunctive processes, and the persons engaged in maintaining them should be punished with all the severity of criminal prosecution, in order that the methods pursued in the operation of their business shall be brought within the law. To destroy them and eliminate the wealth they represent from the producing capital of the country would entail enormous loss and would throw out of employment myriads of workmen and workingwomen. Such a result is wholly unnecessary to the accomplishment of the needed reform, and will inflict upon the innocent far greater punishment than upon the guilty.

"* * * The Democratic platform proposes to take off the tariff on all articles coming into competition with those produced by the so-called 'trusts,' and to put them on the free list. If such a course would be utterly destructive of their business, as is intended, it would not only destroy the trusts, but all of their smaller competitors. The ruthless and impracticable character of the proposition grows plainer as its effects upon the whole community are realized.

"To take the course suggested by the Democratic platform in these matters is to involve the entire community, innocent as it is, in the punishment of the guilty, while our policy is to stamp out the specific evil."

In an address delivered at Indianapolis on August 25 on the trust question, Mr. Bryan indicated in the following language the general attitude of his party as he conceived it on the question of the regulation of monopolies:

"Let the issue be made plain; let the distinction be accurately drawn; let the respective positions of the parties be fully understood. The Democratic party does not oppose all corporations; on the contrary, it recognizes that the corporation can render an important service to the public. The Democratic party wants to employ every instrumentality that can be employed for the advancement of the common good; but the Democratic party draws the line at the private monopoly, and declares that a private monopoly can not be justified on either economic or political grounds.

"From an economic standpoint, a monopoly is objectionable. The moment a corporation secures a practical monopoly in the production or sale of any article, certain evils appear which outweigh any good that can come from large production or control. Wherever private monopolies exist, certain irresistible tendencies manifest themselves. First, it raises prices—this is the first thing thought of for the increasing of profits. Then, in proportion as it becomes the only purchaser of the raw material, it reduces the price of the raw material, and the producer of that raw material, having no other market, must accept the price offered. In this way, too, the profits of the corporation are increased. Third, a reduction in the quality of the product affords an opportunity for increas-

ing profits. Fourth, reduction in wages follows wherever conditions will permit.

"Competition protects the purchaser, for when a number of independent producers stand ready to supply him with what he needs, he can choose between them and buy from the one who offers the best product at the lowest price. He is also protected in quality because those who compete for the opportunity to sell to him must show either advantage in price or advantage in quality. Competition protects the man who produces raw material, for when there are a number of bidders for that which is being sold, he can accept the highest price offered. Competition also helps the wage-earner, for his skill is the finished product which he offers upon the market, and where a number of independent industries are endeavoring to secure the highest skill, the skilled laborer has the best assurance of obtaining a fair recompense; when there is but one employer, the employee must take the price offered, because he will lose the advantage of his experience if he must go out to find a different kind of employment.

"The business men of the country have felt the pressure of the trusts. The retailer has been compelled to enter into contracts which restrict his management of his own affairs, he has found the terms of sale and payment changed to his disadvantage and he has been forced to carry more and more of the risks of trade. He is convinced that there are no good trusts and that his only safety is in the Democratic plan which lays the ax at the root of the tree."

THE RAILWAY ISSUE. On the question of regulation of railways by the Federal government, the rival candidates were even less specific than in their discussion of the tariff and the trusts. The chief question at issue was perhaps that of the necessity of a physical valuation of railways. Mr. Taft, in his speech of acceptance, did not commit himself to any decisive utterances, but confined his allusions to the matter of railroads to more general treatment, although he indicated that he was not unalterably opposed to the physical valuation. The tenor of his treatment of the subject may be seen from the following extract:

"The question of rates and the treatment of railways is one that has two sides. The shippers are certainly entitled to reasonable rates; but less is an injustice to the carriers. Good business for the railroads is essential to general prosperity. Injustice to them is not alone injustice to stockholders and capitalists, whose further investments may be necessary for the good of the whole country, but it directly affects and reduces the wages of railway employees, and indeed may deprive them of their places entirely.

"From what has been said the proper conclusion would seem to be that in attempting to determine whether the entire schedule of rates of a railway is excessive the physical valuation of the road is a relevant and important, but not necessarily a controlling factor."

Mr. Bryan was rather more outspoken, and his general attitude on the question may be gathered from the following extract from a speech on railroads, delivered at Peoria, Ill., on Sept. 9:

"Our platform outlines the regulation deemed necessary, and the regulation is specifically

set forth in order that our opponents may not be able to scare the public by predicting hurtful legislation. Our platform, unlike the Republican platform, says what it means and means only what it says.

"A distinction is drawn between the railroads and other corporations. The railroad, being a quasi-public corporation and, as such, being permitted to exercise a part of the sovereignty of the State, is subject to regulation at the hands of both the Nation and the State, but this regulation is intended, not to cripple the railroads but to increase their efficiency. The people at large are as much interested as the stockholders are in the successful operation of the railroads. Their own pecuniary interests as well as their sense of justice would restrain them from doing anything that would impair the road or reduce its efficiency. The traveling public is vitally interested in the payment of wages sufficient to command the most intelligent service, for life as well as property is in the hands of those who operate the trains, guard the switches, and keep the track in repair.

"The Democratic Party would distinguish between those railroad owners, directors and managers who, recognizing their obligation to the public, earn their salaries by conscientious devotion to the work entrusted to them, and those unscrupulous 'Napoleons of Finance' who use railroads as mere pawns in a great gambling game without regard to the rights of employees or to the interests of the patrons. It is in the interest of honest railroading and legitimate investment that the Democratic Party seeks to ascertain the present value of the railroad properties and to prevent for the future the watering of stock and the issue of fictitious capitalization; and it is in the interest of both the railroads and the public that it seeks only such reductions in transportation rates as can be made without wage reduction, without deterioration in the service and without injustice to legitimate investments."

THE LABOR INJUNCTION ISSUE. The most heated arguments of the campaign probably centred around the question of the modification of the laws relating to the issuing of injunctions by Federal courts. It was made a principle of the Democratic party that such injunctions should not be issued without a preliminary hearing, and that injunctions should not be issued in case of strikes, or in cases involving labor disputes, where they would not be issued if no such questions were involved. Mr. Taft favored certain modifications of the court practices respecting injunctions and expressed himself as strongly opposed to secondary boycotts and certain other practices sometimes used by trade unions. His attitude on the question of a preliminary hearing on injunctions may be seen from the following extract from his speech of acceptance:

"It is a fundamental rule of general jurisprudence that no man shall be affected by a judicial proceeding without notice and hearing. This rule, however, has sometimes had an exception in the issuing of temporary restraining orders commanding a defendant in effect to maintain the *status quo* until a hearing. Such a process should issue only in rare cases where the threatened change of the *status quo* would inflict irreparable injury if time were taken to give notice and a summary hearing. The un-

lawful injury usual in industrial disputes, such as I have described, does not become formidable except after sufficient time in which to give the defendants notice and a hearing. I do not mean to say that there may not be cases even in industrial disputes where a restraining order might properly be issued without notice, but, generally, I think it is otherwise. * * * * *

"In securing to the public the benefits of the new statutes enacted in the present administration the ultimate instrumentality to be resorted to is the courts of the United States. If now their authority is to be weakened in a manner never known in the history of the jurisprudence of England or America, except in the Constitution of Oklahoma, how can we except that such statutes will have efficient enforcement? Those who advocate this intervention of a jury in such cases seem to suppose that this change in some way will insure only to the benefit of the poor workingmen. As a matter of fact, the person who will secure chief advantage from it is the wealthy and unscrupulous defendant, able to employ astute and cunning counsel and anxious to avoid justice."

The attitude of the Democratic party as interpreted by Mr. Bryan is indicated in the following extract from a speech on injunctions delivered at Chicago on Sept. 7:

"The Democratic platform proposes no interference with the right of the judge to decide the cases of direct contempt—contempt committed in the presence of the court; neither is it proposed to interfere with the right of the judge to determine the punishment for indirect contempt. All that is sought is the substitution of trial by jury for trial by judge when the violation of the court's decree must be established by evidence. * * * * *

"While the laboring men have been the first to complain of this denial of the right of trial by jury in cases of indirect contempt, it ought not to be considered a labor question. * * * It behooves us, as lovers of our country and as the friends of liberty, to insist upon the independence of the different departments of our government and upon the maintenance of the rights which have been shown by experience to be essential to freedom and self-government. The jury system must be preserved, and we cannot hope to preserve it if, for any reason or under any pretext, we permit any citizen to be denied the protection which it furnishes."

During his service as a judge of the Superior Court of Cincinnati and as a Judge on the Federal bench, especially at the time of the great railway strike led by Eugene V. Debs, Mr. Taft delivered certain decisions in respect to labor questions in which he had issued injunctions and had also made decisions in cases involving secondary boycott. (See INJUNCTIONS.) For these decisions he was sharply criticised by Mr. Bryan and other speakers during the campaign, and the attempt was made to prove that these decisions had shown Mr. Taft opposed in general to the laboring men. The strongest speeches made by Mr. Taft in the campaign were in defense of these decisions and the frank and sincere explanation of his attitude was most favorably received by the audiences of laboring men to whom he made a point of recounting the circumstances under which the decisions were given.

THE ISSUE OF THE GUARANTY OF BANK DEPOSITS. Next to the question of labor injunctions, this issue was the most warmly debated of the questions of the campaign, especially by Mr. Bryan. A general discussion of the chief points of the proposition will be found in the article BANKS AND BANKING. Mr. Taft's attitude on the subject is indicated in the extract given below from his speech of acceptance:

"The Democratic platform recommends a tax upon national banks and upon such State banks as may come in, in the nature of enforced insurance, to raise a guaranty fund to pay the depositors of any bank which fails. How State banks can be included in such a scheme under the Constitution is left in the twilight zone of State's rights and federalism so frequently dimming the meaning and purpose of the promises of the platform. If they come in under such a system, they must necessarily be brought within the closest national control, and so they must really cease to be State banks and become National banks.

"The proposition is to tax the honest and prudent banker to make up for the dishonesty and imprudence of others. No one can foresee the burden which under this system would be imposed upon the sound and conservative bankers of the country by this obligation to make good the losses caused by the reckless, speculative and dishonest men. * * * In short, the proposal is wholly impracticable unless it is to be accompanied by a complete revolution in our banking system, with a supervision so close as practically to create a government bank. If the proposal were adopted exactly as the Democratic platform suggests it would bring the whole banking system of the country down in ruin."

That Mr. Bryan was enthusiastically in favor of the plan will be shown by reading the following extract taken from a speech made on the subject in Topeka on August 27:

"The chief cause of bank failures is the making of excessive loans to directors or officials of the bank. This is the fruitful cause of disaster, and it has been impossible to secure legislation protecting banks from their own officials and directors. Why? Because there has been no mutual responsibility. When all banks become liable for the deposits of each, the stockholders will insist upon the enactment of a law making it a criminal offense for a bank official to loan more than the prescribed amount to one individual. At present we have a law prohibiting the loaning of more than one-tenth of the capital and surplus to one person or corporation, but the law is only directory. Of course, the Comptroller can suspend a bank if it violates the law, but the law is not enforced, because the enforcement of such a law would throw the punishment upon innocent stockholders and upon the community, since the suspension of a bank inflicts a great loss upon stockholders and disturbs the business of the city or town in which the bank is located.

"The law should make it a criminal offense to loan more than the prescribed amount to one person, and we would probably be able to secure the passage of a law prohibiting market speculation by bank officials.

"Why not make the depositor secure? The United States government requires the deposit of specific security when it intrusts money to

a national bank, although it can examine the bank at any time; the State requires security when it deposits money in a bank; the county requires security and the city requires security; even the banks require security from the officials who handle money. Why should the depositor be left to take his chances?

"Not only is the depositor without protection, but the security given to nation, State, county and city lessens his security. They are preferred creditors; they have a mortgage on the gilt-edged assets and the depositor must get along as best he can with what remains. Why are the interests of depositors thus neglected?

"A bank asks deposits on the theory that the depositor is sure of the return of his money, and the laws ought to make the facts conform to the theory. The depositor, the community and the banker himself will be benefited by legislation which will give to every depositor the assurance that that which is committed to the keeping of the bank will be available to meet his needs at any time. Such is not the case to-day, for while all banks are reasonably secure, they are not absolutely so. This statement can be verified in several ways."

MINOR ISSUES. The question of the publicity of campaign fund contributions received a considerable amount of discussion during the campaign, especially on the part of Mr. Bryan, who made much of the failure of Congress at its last session to pass a bill making publicity of contributions compulsory and also the refusal of the Republican delegates to incorporate such a plank in the party platform at the National Convention. Early in July, Mr. Taft, in reply to a telegram from Mr. Bryan relating to the matter, expressed himself as heartily in approval of publicity. George R. Sheldon of New York had been appointed treasurer of the Republican National Committee, and the selection of New York City as the principal headquarters of the committee for the campaign made it obligatory that the contributions received for carrying on the Republican campaign should be made public, as the laws of the State of New York require this. The chief question at issue therefore, was whether the contributions should be made public before or after the campaign. Following Mr. Bryan's announcement, the Democratic National Committee decided to make public such contributions at designated intervals during the campaign, as well as afterwards, while the Republican National Committee reserved the right to wait until after the campaign had been concluded.

The question of imperialism was not a vital one, but Mr. Taft delivered several addresses in which he defended the course of the government in the Philippines. The issues of the smaller parties of the campaign are sufficiently indicated in their platforms and will be found under that section of this article.

PROGRESS OF THE CAMPAIGN.

Following the nominating conventions, the campaign was slow in starting. On July 8, Frank H. Hitchcock was elected chairman and George R. Sheldon treasurer of the Republican National Committee. Headquarters were established in New York and in Chicago. On July 17 the Democratic candidates issued an appeal to the farmers of the country asking for special contributions to the campaign fund. At a meeting of the Democratic National Committee at

Chicago, Norman E. Mack was chosen chairman and Gov. Charles N. Haskell, of Oklahoma, treasurer, for the campaign. The chief headquarters of the committee were established in New York. On July 28 at Cincinnati Mr. Taft was officially notified of his nomination for the Presidency. He outlined in a long speech the principles on which he purposed to conduct the campaign. Mr. Bryan was notified of his nomination for the Presidency on Aug. 12, at his home in Lincoln, Neb. In his speech of acceptance he attacked the Republican party and established as the catchword of the campaign the slogan, "Shall the People Rule?" On Aug. 21 Mr. Bryan formally opened his campaign by delivering an address on the tariff at Des Moines, Iowa. This address was the first of a series in which he purposed to discuss seriatim the chief issues of the campaign. Mr. Taft announced on Aug. 22 his purpose, if he were elected, to call a special session of Congress for the revision of the tariff as soon as possible after March 4, 1909. On Aug. 28, he delivered a speech criticising strongly Mr. Bryan's plan for Federal guarantee of national bank deposits, and on the following day Mr. Bryan defended this plan by a speech delivered at Topeka. The fight in Ohio carried on by Senator Foraker against Secretary Taft, prior to Mr. Taft's nomination (see OHIO), was temporarily suspended by a meeting between Mr. Taft and Senator Foraker, brought about on Sept. 2, in which the latter pledged his support to the Republican National ticket.

The Republican campaign was formally opened by Governor Hughes of New York, Senator Beveridge of Indiana, and Governor Harris of Ohio, at Youngstown, Ohio, Sept. 5. The speech delivered by Governor Hughes was, for clearness, logic and conciseness of expression, probably unsurpassed during the campaign. At the beginning of the campaign Mr. Taft had expressed his intention of making no campaign tours. He decided, however, on Sept. 5, that he would make an extended speaking trip about the end of the month. Mr. Bryan on Sept. 6 began a tour which lasted three weeks. President Roosevelt had been strongly importuned to take an active speaking part in the campaign, but this he refused to do. On Sept. 13, however, he made public a letter, in effect a campaign document, strongly endorsing Mr. Taft. The campaign up to this point had lacked any striking features and had aroused little apparent public interest. About the middle of September, however, a disturbing element appeared in the person of Mr. William R. Hearst, who, in a speech made in support of Mr. Hisgen, the nominee of the Independence Party, made statements in which he asserted that Charles N. Haskell, the treasurer of the Democratic National Committee, had been in strong affiliation with the Standard Oil Company, and that he was one of three men who had undertaken, through the alleged offering of bribes, to obtain the dismissal of suits against the company in Ohio. Mr. Haskell denounced these statements as falsehoods. A still greater sensation was caused by the production by Mr. Hearst of certain letters from a high official of the Standard Oil Company to Senator Foraker, of Ohio. The letters, which bore the signature of John D. Archbold, indicated that Senator Foraker had, at one time, received checks from the Standard Oil Company, presumably in payment for serv-

ices he had rendered to that corporation. Mr. Foraker denied that any of the money received from the Standard Oil Company had been employed illegitimately. In respect to one of the checks, which was for \$50,000, Mr. Foraker explained that it was in furtherance of an attempt to buy the *Ohio State Journal*, which was a bitter opponent of Republican policies in the State of Ohio. See STANDARD OIL.

The situation which had developed in regard to Senator Foraker destroyed the temporary agreement between him and Mr. Taft in regard to Ohio. Senator Foraker took no active part in the campaign, following these disclosures.

The assertions of Mr. Hearst in regard to Governor Haskell drew from President Roosevelt an attack on Governor Haskell, and by implication, on the Democratic party, of whose campaign committee he was the treasurer. To this attack Mr. Bryan replied on Sept. 22 with a long telegram to President Roosevelt, in which he resented strongly the statements made by the President and defended the action of the convention in selecting Governor Haskell as chairman of the committee on resolutions and as treasurer of the National Democratic Committee. To this telegram President Roosevelt replied on Sept. 23 with a letter in which he did not attempt to give detailed proof that Governor Haskell had been involved in the alleged attempt to secure favors for the Standard Oil Company by means of bribes, but dwelt almost entirely on the governor's action in dealing with the injunction suit brought against the Prairie Oil and Gas Company, a concern affiliated with the Standard Oil Company. Governor Haskell, just prior to the meeting of the Democratic National Convention, had dissolved an injunction preventing this company from laying pipe lines in the State of Oklahoma, although the attorney-general of the State had protested against such action. President Roosevelt declared that Governor Haskell's close relations with the Standard Oil interests while he was a resident of Ohio were a matter of common notoriety. He invited Mr. Bryan to contrast the action of Judge Taft in practically repudiating Senator Foraker, with Mr. Bryan's action in the case of Governor Haskell. He reminded Mr. Bryan that when he selected Mr. Haskell as treasurer of the Democratic Committee he must have been familiar with what had been done in the matter of the Prairie Oil and Gas Company injunction. The President said that "while it was a matter of common notoriety about Senator Foraker that he was the defender and supporter of great corporations, and thereby hostile to the policies for which this administration has stood, there was no such convincing proof against Senator Foraker at that time as there was against Governor Haskell when, as you say, he was, with your approval, made treasurer of your campaign committee." The President declared that "Governor Haskell is entirely unfit for any public position of trust, or for association with any man anxious to make an appeal on a moral issue to the American people." This he said had been abundantly shown, irrespective of his action in connection with the Standard Oil Company's interests. To this letter Governor Haskell on Sept. 24 gave out a reply which commented with great bitterness on the President's aspersions upon him. He asserted that the franchise of the Prairie Oil and Gas Company had

been obtained, not from him, but from the Secretary of the Interior in President Roosevelt's cabinet, and that he had only respected the franchise which existed. On Sept. 25 Mr. Haskell resigned as treasurer of the Democratic National Committee, and Herman Ridder, of New York, was appointed to take his place. On Sept. 6 Mr. Bryan sent a long letter to President Roosevelt in which he again defended Mr. Haskell. The letter, however, was devoted chiefly to an attack against the general policies of the Republican Party in receiving campaign contributions from corporations and its failure to prosecute trusts. President Roosevelt refused to continue the correspondence with Mr. Bryan. Mr. Hearst continued to read letters bearing on the relations of the Standard Oil Company with prominent politicians of both parties and especially with Senator Foraker. On Sept. 25 Senator Foraker issued a long statement denying the charges made against him and bitterly criticising President Roosevelt for the aspersions made upon him on Sept. 21. Gen. T. Coleman du Pont, head of the Bureau of Speakers in the Republican campaign, on Sept. 25 resigned his office at the suggestion of Chairman Hitchcock. General du Pont was the head of the so-called "Gunpowder Trust," against which the Federal government has begun proceedings, and his continuance as an active official of the campaign was deemed inconsistent.

In the latter part of September and the first days of October Mr. Taft made a speech-making tour as far west as Colorado and Wyoming. In the middle of October he visited the South with the avowed intention of showing that section of the country that its prosperity depended on the enforcement of the Republican policies. On Oct. 15 the list of contributors to the Democratic National campaign fund up to that date was made public. The contributions amounted to about \$250,000. On Oct. 21, President Roosevelt began to take an active hand in the campaign by making public a letter to Senator Knox, of Pennsylvania, in which he called upon Mr. Bryan to indicate his attitude toward the labor question. He declared that the Democratic platform promise really meant the enactment of a law to strip lawful business of all protection from violence and to legalize the blacklist and secondary boycott, while at the same time it was an attempt to delude labor because such a law would be rejected as unconstitutional by the Supreme Court. Mr. Bryan refused to reply specifically to these charges, but insisted that he had already replied to them in speeches made during the campaign. Both candidates concluded their campaigns by concentrating their efforts on New York. The State's electoral vote was at that time considered necessary for the election of either candidate. The struggle had been waged warmly in other doubtful States, such as Indiana and Illinois, where local conditions had changed normally Republican States to doubtful States. Mr. Bryan proved himself during the campaign a wonderful debater, as in the two previous campaigns in which he had been the candidate. His endurance under the great physical demands made by his constant speaking and travelling was little short of phenomenal. Mr. Taft, who had no reputation as an orator, showed himself, a logical and convincing speaker, and his active campaign unquestionably won

for him many votes which he might otherwise have lost.

Of the campaigns made by the minor parties little need be said. Mr. Debs, the Socialist candidate, made a tour of the country in a special train and spoke to large and enthusiastic audiences. The chief feature of the campaign of the Independence Party was the disclosures made by Mr. Hearst referred to above. An attempt made by Samuel Gompers, President of the American Federation of Labor, to influence the "labor vote" for Mr. Bryan met, as is indicated by the results of the election, with little success. Mr. Chafin, candidate of the Prohibition Party, made an aggressive campaign.

RESULTS OF THE ELECTION.

The results of the election giving the popular and electoral vote by States will be found in the table on p. 594. Comment upon the results in the different States will be found in the political section on the States.

The total popular vote cast for all candidates was 14,961,924, taking the highest vote received by the electors in the States. Of these votes Taft received 7,811,143; Bryan, 6,328,601; Debs, 448,453; Chafin, 241,252; Gillhaus, 15,421; Watson, 33,871; and Hisgen, 83,183. The popular majority of Taft over Bryan was 1,482,542, and the popular majority of Taft over all other candidates was 660,362. These figures may be compared with those cast in the Presidential election of 1904, when the total vote cast was 13,510,708, of which Roosevelt received 7,623,486; Parker, 5,077,971; Debs, 402,283; Swallow (Pro.), 258,536; Watson (Pop.), 117,183; Corrigan (Soc. L.), 31,249. From these figures it will be seen that although Taft in 1908 received 7,811,143 votes, as compared with 7,623,486 cast for Roosevelt in 1904, Bryan in 1908 received 6,328,601, as compared with 5,077,971 for Parker in 1904, or considerably more than a million votes over those cast for Parker. Of the 483 votes in the electoral college, Taft received 321 and Bryan 162, as compared with 336 for Roosevelt and 140 for Parker in 1904. Had the complicated election returns in Maryland not resulted in the splitting of the electoral vote so that Bryan received six and Taft two, the result in the electoral college would have been either 489 for Taft or 164 for Bryan. Outside of the States known as the "Solid South," which are always counted previous to an election as Democratic, and the border States, Bryan carried but four States, Colorado, Nebraska, Nevada, and Oklahoma. Of the border States he lost an equal number, Maryland (by a divided vote), West Virginia, Missouri, and Delaware. In several of the Eastern States, Rhode Island, New York, Massachusetts, and Connecticut, Taft's pluralities ran ahead of those received by Roosevelt in 1904.

One of the most notable features of the election was the comparatively small vote cast for the candidates of the minor parties. Thus, in spite of the unusually aggressive campaign made by Debs, the Socialist candidate, accompanied by repeated claims that the Socialist vote would exceed a million, the vote really cast was only 46,000 more than the vote cast in 1904, while the vote cast for the Prohibition candidate was about 17,000 less than that cast in 1904. Still more significant was the decrease in the Populist vote. Thomas E. Watson, who was the candidate in both elections, received 117,183 votes in 1904, while in 1908

he received but 33,871. The vote of Hisgen, candidate of the Independence Party, was so small as to be negligible in the general results. Another remarkable feature of the election was the disappearance of organized labor as a factor in the contest. In spite of the impassioned appeals of Mr. Gompers, president of the American Federation of Labor, that the vote of the laboring men be cast for Bryan, and in spite, too, of his repeated assertions that this would be the case, there is no evidence in the returns that the labor vote was not cast quite as independently as any other.

Next to the results of the votes for President, interest centered about the probable issue in New York State, where, although it was generally conceded that Taft would receive a majority of the votes cast, the Democrats had more confidence than for several years in the election of their candidate for governor. Although Hughes, the Republican candidate, had the confidence and support of the rank and file of the Republican party, he was out of touch with its leaders, and the Democrats had put forward an able and aggressive candidate in Lewis S. Chanler. The results in the State, and especially in the city of New York, were surprising. Taft received a plurality in the State of 202,602, while Hughes' plurality was 69,462. Greater New York gave Taft a plurality of over 15,000. Even New York county, the old city of New York, which is normally Democratic by a large majority, gave Bryan less than 6,000 plurality.

There were interesting and significant features in other States. Indiana, which was considered a doubtful State by both parties, gave Taft a plurality of 10,731, while Marshall, the Democratic candidate for governor, was elected over Watson, the Republican candidate, by 14,353. In Illinois, Taft received the enormous plurality of 179,122, while Deneen, the Republican candidate for governor, was elected by a plurality of only 23,164. Ohio, normally a strong Republican State, gave Taft a plurality of 69,591, while Harmon, the Democratic candidate for governor, defeated Harris, the Republican candidate, by 19,372. Minnesota, another strong Republican State, gave Taft a plurality of 85,822, while Johnson, the Democratic candidate for governor, was elected by a plurality of 20,178. This result is largely accounted for by the great personal strength of Governor Johnson in the State. In most States Taft ran ahead of the Republican State ticket and Bryan behind the Democratic ticket. There was an exception to this in Missouri, where Hadley, the Republican candidate for governor, received a plurality of 15,789, while Taft's plurality in the State was 1629.

One of the most interesting features of the election was the strong attempt made to defeat Speaker Cannon for reelection in Illinois. Many religious and reform organizations united in this endeavor on the ground that Mr. Cannon was morally and politically disqualified for reelection. Although his vote was somewhat reduced, he was reelected by a safe plurality. Among local results, interest attached to the reelection of Judge Dunne, of San Francisco. It was he who sentenced Schmitz and Ruef to prison and a hard fight was made against his reelection. Interesting and significant, too, was the reelection of Judge Ben B. Lindsey, of Denver. Judge Lindsey has won international fame as judge of the Juvenile Court, and his work

in the redemption of juvenile offenders has been highly praised. He ran on an independent ticket against two regular party candidates, and his vote was almost as large as that of both his competitors combined. One of the most satisfactory local results of the election was the

vote against the continuance of the present divorce laws in South Dakota. (See DIVORCE.) Perhaps the most generally significant feature of the election was the strong tendency in many States toward independent voting, as reflecting a growing disregard of strict party lines.

POPULAR AND ELECTORAL VOTE FOR PRESIDENT IN 1908.

STATES	Popular Vote								Elect. Vote	
	Bryan, Dem.	Taft, Rep.	Deba. Soc.	Chadl. Pro.	Gillhaus, Soc. L.	Watson, Pop.	Hagen, Ind.	Plurality	Bryan, Dem.	Taft, Rep.
Alabama	74,374	41,692	1,399	622	.....	1,568	495	32,682 D	11	...
Arkansas	87,015	56,624	5,750	1,121	.....	1,121	313	30,391 D	9	...
California	127,492	214,398	28,659	11,770	.....	.....	4,278	98,906 R	...	10
Colorado	126,772	123,732	7,960	5,538	.....	.....	.....	3,040 D	5	...
Connecticut	68,255	112,815	5,113	2,380	.....	.....	650	44,560 R	...	7
Delaware	22,071	25,014	240	670	.....	.....	28	1,943 R	...	3
Florida	81,104	9,923	3,747	1,356	.....	1,948	553	21,181 D	5	...
Georgia	72,350	41,692	584	1,059	.....	16,958	77	30,658 D	13	...
Idaho	36,080	52,606	6,243	1,740	.....	.....	210	16,526 R	...	3
Illinois	450,810	629,932	34,711	29,364	1,675	601	7,648	179,122 R	...	27
Indiana	338,262	348,903	13,476	18,045	643	1,193	514	10,641 R	...	15
Iowa	200,771	275,210	8,287	9,837	.....	251	404	74,439 R	...	13
Kansas	161,209	197,216	12,420	5,033	.....	.....	301	56,007 R	...	10
Kentucky	244,092	235,711	4,037	5,887	342	324	77	8,881 D	13	...
Louisiana	63,568	8,958	2,538	.....	.....	.....	82	54,510 D	9	...
Maine	85,403	65,987	1,758	1,487	.....	.....	652	30,584 R	...	6
Maryland	115,908	113,803	2,323	3,302	.....	.....	485	21,105 D	6	2
Massachusetts	155,543	285,966	10,779	4,874	952	.....	19,175	110,423 R	...	16
Michigan	175,771	335,580	11,586	16,974	1,006	.....	760	180,409 R	...	14
Minnesota	69,594	155,416	10,021	8,658	.....	.....	420	98,729 R	...	11
Mississippi	60,876	4,505	1,048	.....	.....	1,309	.....	85,812 D	10	...
Missouri	346,754	347,203	15,381	4,191	867	1,165	397	829 R	...	18
Montana	29,431	32,375	5,961	1,486	.....	.....	1,200	2,944 R	...	3
Nebraska	131,099	126,997	3,524	5,170	.....	.....	.....	4,002 D	8	...
Nevada	11,212	10,777	2,203	.....	.....	.....	415	435 D	3	...
New Hampshire	33,655	53,149	1,299	906	.....	.....	584	19,484 R	...	4
New Jersey	182,522	265,298	1,196	4,930	1,196	.....	2,916	82,776 R	...	12
New York	667,100	870,070	38,448	22,654	3,877	.....	35,785	202,970 R	...	39
North Carolina	136,628	114,887	.....	.....	.....	.....	.....	22,041 D	12	...
North Dakota	32,909	57,771	2,411	.....	.....	.....	38	24,862 R	...	4
Ohio	502,721	572,312	33,795	11,402	721	162	439	69,591 R	...	23
Oklahoma	122,406	110,558	21,729	.....	.....	434	244	11,848 D	7	...
Oregon	38,049	62,530	7,339	2,682	.....	.....	289	24,481 R	...	4
Pennsylvania	448,785	745,779	33,913	36,684	1,222	.....	1,067	296,994 R	...	31
Rhode Island	24,706	43,852	1,295	996	207	.....	814	19,246 R	...	4
South Carolina	62,283	3,963	101	.....	.....	.....	45	58,320 D	9	...
South Dakota	40,223	67,352	2,846	4,039	.....	.....	88	27,129 R	...	4
Tennessee	135,819	118,519	1,878	268	.....	1,081	232	17,300 D	12	...
Texas	216,737	65,602	7,870	1,634	176	994	115	151,135 D	18	...
Utah	42,601	61,015	4,895	.....	.....	.....	87	18,414 R	...	3
Vermont	11,496	39,552	.....	799	.....	.....	804	28,056 R	...	4
Virginia	82,916	52,573	256	1,111	25	225	51	30,333 D	12	...
Washington	58,691	102,062	4,700	14,177	.....	.....	248	43,371 R	...	5
West Virginia	111,418	137,869	3,679	5,139	.....	.....	46	28,451 R	...	7
Wisconsin	166,632	247,747	28,164	11,564	.....	.....	.....	81,115 R	...	13
Wyoming	14,918	20,846	1,715	66	.....	.....	64	5,928 R	...	3
Total	6,328,601	7,811,143	448,453	241,252	15,421	33,871	83,183	1,482,542 R	162	321

PRICES. The period of industrial prosperity stretching from 1898 to 1907 was a decade of rising prices, while the year following the collapse of Oct., 1907, was one of lowered prices. In the March *Bulletin* of the United States Bureau of Labor appeared the results of an investigation into wholesale prices from 1890 to 1907, inclusive. The report covered 258 representative articles. The results showed that wholesale prices in 1907 were 5.7 per cent higher than in 1906, 44.4 per cent higher than in 1897, the year of lowest prices for the eighteen years studied, and 29.5 per cent higher than the average for the ten years, 1890 to 1899, inclusive. The highest level of the entire period was reached in Oct., 1907; and the lowest prices in 1907 were those of December. Of the 258 articles recorded, 172 showed increases in price in 1907 over 1906, 35 no change, and 51 decreases. The greatest average increase was in farm products. Of 53 foods, 34 showed increases in 1907 as compared with prices in 1906,

while 13 showed decreases. Of 75 cloths and articles of clothing, 54 showed increases and only 10 decreases.

In the July *Bulletin* the same bureau published a study of retail prices of food based on 30 staple food commodities sold in 68 localities in the United States by 1,014 dealers. This showed that such prices were 4.2 per cent higher in 1907 than in 1906, being higher in each month of 1907 than in the corresponding month of 1906. The average prices of 20 of the 30 articles were higher in 1907 than in any other year of the eighteen years, 1890-1907; while all of them, except the price of coffee, were higher in 1907 than in 1896, the year of lowest retail prices. Taking the average prices of the decade 1890 to 1899 as equal to 100, the average for 1901 was 105.5; for 1903, 110.9; for 1905, 112.5; for 1907, 120.7. The maximum was reached in Dec., 1907, when the average on this same basis was 125, as compared with 117.8 for June. The 1907 averages for various commodities, tak-

ing as 100 the average for the decade 1890-1899, were as follows: Fresh beefsteaks, 120.6; butter, 127.6; cheese, 123.2; dressed cold-storage chickens, 131.4; coffee, 95; eggs, 137.7; fresh fish, 120.6; wheat flour, 117.7; fresh milk, 116.8; mutton, 130.1; fresh pork, 142.5; bacon, 157.3; ham, 130.7; Irish potatoes, 120.6; sugar, 99.6; tea, 105.3; veal, 125.

On the basis of these results the bureau computed what had been the change in the cost of food for workingmen's families. The results of an inquiry made in 1901 were also brought into use. This inquiry covered 2,567 workingmen's families in various parts of the United States. The average size of family was 5.3; the average income per family \$829.19, and the average expenditure for food \$326.90. The computation made on the basis of increased prices gave as the average expenditure per family for food in 1903 \$342.75; in 1905, \$349.27; and in 1907, \$374.75.

According to *Bradstreet's* approximate price index numbers, commodities maintained remarkably high and steady prices during 1908, considering the state of industry. The highest point of the year was that of Jan. 1, when the index was \$8.2949; the lowest was June 1, \$7.7227; and that of Jan. 1, 1909, was \$8.2756. These may be compared with \$9.1293 on Mar. 1, 1907, the maximum of recent times, and with \$6.802 on Jan. 1, 1899.

ENGLAND. The tables of index numbers published by the London *Economist* showing the average level of commodity prices are significant not only of the relative cost of living in England at different dates, but in most countries of the civilized world. The numbers for designated years were as follows: 1891, 2,240; 1897, 1,885, the lowest since 1860; 1907, 2,494. The highest level in thirty years was reached June 1, 1907, when the index number was 2,601. On Oct. 1, 1907, the index was 2,457; it dropped slowly but steadily until June 1, 1908, when it was 2,188; it rose two points in July, but on Sept. 1 stood at the low point of the year, 2,188; on Dec. 1, it was 2,198.

PRIMARIES, DIRECT. A notable political feature of the year was the enactment of several new primary laws and the results obtained by this method of nominating candidates for public office. The direct primary has been in use in a number of Southern States for some years. The existence of only one strong party there makes the primary nominations practically equivalent to election. But favor for this system has so spread that now fully two-thirds of the States have adopted it more or less fully. States enacting new laws or amending old ones on primary elections during 1908 were Illinois, Kansas, Louisiana, Michigan, Mississippi, Missouri, New Jersey, New York, and Ohio. Besides general interest in many States active interest was aroused in New York by Governor Hughes, and in New Hampshire by Winston Churchill.

The Illinois law is one of the most comprehensive yet enacted. It provides for the nomination of all elective officers, except Presidential electors, State University trustees and township and school officials, and of committeemen of all political parties, by the direct vote of members of the various political parties. All parties are required to hold primaries on the same day, voting by election precincts. Separate ballots are authorized for each party, and

the voter must announce his party affiliation before receiving a ballot. The expense of primaries is borne by the public. The new law applies to congressional, senatorial, State, county, and local elections. Moreover, it legalizes party organization by recognizing existing political parties, prescribing rules for the calling of party conventions, and providing for the organization of State and county committees. The thorough-going character of this law is at once apparent. The first test of it was made in Aug., 1908. Opinions as to its success were various. Opponents of the law charged that in some cases the least desirable candidate was chosen because the vote of the better element was divided between desirable men, while politicians and special interests united their strength. In Chicago wholesale fraud was charged. A special grand jury after gathering evidence for weeks returned eighty-one indictments and enumerated fourteen fraudulent practices proven to have been used in this first primary. Among these were fraudulent registration, "repeating by platoons of men," voting names of absentees, non-residents, insane and dead men, perjury, intimidation and handing voters ballots already marked. The jury said: "We find that no confidence can be placed in the reported results in favor of, or against any candidate for a party nomination at the primary election."

In Kansas the first direct primary, under a new and comprehensive law, resulted in the defeat of the regular machine candidates and the nomination of more independent and radical candidates. The first trial of the new law in Missouri resulted in charges of extensive fraud in St. Louis. As at Chicago, it was charged that scores of henchmen of one party were loaned to politicians of the opposing party for use in different precincts. This same fraud was disclosed in Nebraska and Michigan. In New Jersey also the new law was put to its first test. This law was largely due to the efforts of the "new idea" senator, Everett Colby. A vigorous effort by politicians and corporations was made to defeat his nomination for reelection, but in vain. His success is pointed to as a clear victory for popular and good government made possible by the direct primary. In Oregon, where the mandate of the people on candidates for the United States senatorship was made legally and politically binding on members of the legislature by pledges signed before election, a Democrat was nominated by the people for senator, though Republican State officers and Legislature were chosen. In Washington an open revolt against the Republican machine was successfully carried through, largely because of the direct primary. However, experience has shown some defects in the Washington law. It does not prevent members of one party from voting at the other's primary; and confusion results from the provision that when there are four or more candidates for nomination the voter must indicate both a first and a second choice. The object of this device is to prevent nominations by a minority of voters, but its apparent complexity has resulted in the disfranchisement of many fairly intelligent voters. Finally, in Wisconsin the nomination of Senator Isaac Stephenson for reelection was another instance of the inability of Senator La Follette, the author

of the primary law in that State, to control its operation.

The year's experience was most suggestive. Direct primaries are found to be very expensive for candidates. They necessitate the double expense of securing nomination and then of securing election. Moreover, they further favor wealthy candidates in that they tend to shift the expense of elections from corporations and other similar interests to the candidates themselves. This, however, is fully offset by the fact that they tend to weaken corporate power in politics, and lessen the power of political machines built on the spoils system. As a rule good men are nominated and known reactionaries defeated. Moreover, voters can assert their wishes directly in the choice of candidates instead of being limited to a choice between two, both of whom may be unfit. They sometimes result in nomination by minorities or mere pluralities; but this has not resulted in the disruption of party loyalty, nor otherwise raised serious objection. The national leaders during the 1908 campaign claimed that the direct primary accentuated local and factional differences and disorganized party control. Professional politicians have generally been disappointed with the results of direct primaries and no doubt they do give party members an effective check on the power of party bosses. At the same time those reformers who thought the primary a panacea for all social and political evils have also been disappointed. For a study of American experiences and tendencies see *Direct Primaries* (Chicago, 1908), by Dr. C. E. Merriam.

PRINCE EDWARD ISLAND. An insular province of Canada. Area, 2,184 miles. Population in 1901, 103,259. Charlottetown, the capital, had 12,080 inhabitants in 1901. (For details respecting population, education, production, commerce, etc., see CANADA.) The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada and acting through an Executive Council, or responsible Ministry, and a unicameral House of Assembly of 30 elective members. The present Lieutenant-Governor is Donald A. McKinnon, appointed Oct. 3, 1904. The present Premier is Francis L. Hazard.

HISTORY. The provincial elections were held on Nov. 18, when the Liberal government of Premier F. L. Hazard was returned by a small majority. The Liberals have been in power for over seventeen years. J. A. Mathieson is leader of the Conservative opposition, which numbers fourteen members to the government's sixteen. The issues were mostly local, and on some of them, especially the desirability of restoring the island's original representation in the Dominion Parliament, both sides were practically agreed. An educational commission was appointed to inquire into and report upon desirable changes, with special reference to instruction in agriculture. On account of the readjustment of federal subsidies in 1906 the revenue had been increased by \$70,000 a year and the financial condition of the province was much more prosperous than for many years. Among those defeated on the Liberal side were three members of the cabinet, S. E. Reid, commissioner of agriculture, and J. W. Clark and Peter McNutt, ministers without portfolios. As a new commissioner of agriculture would have to be appointed and might possibly fail to be elected,

the position of the government at the close of the year was not thought to be secure.

PRINCETON UNIVERSITY. An institution of higher learning at Princeton, N. J., founded in 1746. In the academic year 1908-9 there was an attendance of 1,314, divided as follows: Graduate students, 91; academic department, 625; John C. Green School of Science, 533; special students, 4; students qualifying for regular standing, 61. The faculty and instructors numbered 161. The university lost during the year two members of the board of trustees, Dr. Elijah R. Craven, who died on Jan. 5, and Hon. Grover Cleveland, who died June 24. Two members of the faculty, Professor Charles Augustus Young, professor of astronomy, and Professor Walter Augustus Wyckoff, died during the year. The Palmer physical laboratory was opened for classroom and experimental work on Oct. 15, 1908. The Stafford Little lectureship on public affairs, left vacant by the death of Mr. Cleveland, was filled by George Brinton McClellan, who will deliver his first lectures sometime during the spring of 1909. Rapid progress was made during the year toward the completion of the dormitory which is being erected by the class of 1877. Plans for the dormitory presented to the university by Mrs. Russell Sage were perfected during the year. The year was marked by the successful institution of the honors course in the classical humanities. This is an effort to put interesting and stimulating classical study at the service of all undergraduates who are able to use the classical languages with some ease and pleasure, whatever department they may have chosen in their main field of work. President Wilson in his annual report notes the success of the experiment of uniting in some degree the work of the Cliosophic and American Whig societies with the work of the university so far as the freshmen members of these societies are concerned. Courses in the study of oratory and debate have been arranged which freshmen members of the societies may substitute for the regular courses provided for them in English. Sophomore Commons was successfully inaugurated at the beginning of the year. President Wilson recommends the establishment of a new deanship, to be called the deanship of the department of science, and he further recommends that the superintendence of discipline, now invested in the dean of the faculty, be vested in a dean, to be called the Dean of Discipline, and that the duties of the dean of the faculty be confined to the presidency of the faculty in the absence of the president of the university. The receipts for the year were \$605,578, of which \$174,486 were from gifts. In addition there was received for the endowment fund \$524,932. The total productive funds of the university amount to \$3,739,200. The library contains 342,000 volumes. The president is Woodrow Wilson.

PRIVATE BANKS. The number of private banks on June 1, 1908, was 1,007, as against 1,141 one year earlier. Their resources aggregated only \$161,541,000, as compared with \$195,031,000 in June, 1907. The principal items of resources were: Loans on real estate, \$19,610,000; other loans and discounts, \$87,748,000; due from other banks, \$27,298,000; checks and cash, \$10,027,000. The principal liabilities were: Capital stock, \$21,122,000; surplus and other profits, \$9,031,000; deposits, \$126,673,000. Pri-

vate banks were found in 29 States, but about 80 per cent of all of them were in the Middle Western States, Ohio, Indiana, Illinois, Michigan, Minnesota, Iowa, and Missouri. Private banks in the first three States named numbered more than one-half of all, and had 45 per cent of the capital and 62 per cent of the deposits of all private banks; that is, they numbered 551 with \$9,695,800 capital, and \$78,990,800 deposits. In Iowa there were 111 private banks, with \$2,259,000 capital and \$13,100,000 deposits. All private banks in Minnesota, which numbered 117 in June, 1907, expired by legal limitation in April, 1908, most of them becoming State banks. The only other States in which private banks have any aggregate importance are Pennsylvania, Texas, South Dakota, Kansas, California, and Washington. Taking all banks of this country of whatever kind as the basis, private banks held only 1 per cent of total individual deposits and .6 per cent of cash on hand; their loans were only 1 per cent of the total, and their capital, surplus, and undivided profits only .088 per cent. of the total.

PRIVETTI, GIULIO, MARCHESE. An Italian statesman, died at Rome on June 6, 1908. He was born in Milan in 1851, entered Parliament in 1882, and in 1896 became minister of public works in the Rudini cabinet. A year later he was forced from office by the corruptionists, whom he had antagonized in attempting an honest administration of his department. He became minister of foreign affairs in the Zanardelli cabinet in 1901 and retained office until forced to retire from public life by a stroke of paralysis in 1903. His term of office was marked by a renewal of the Triple Alliance and by efforts to extend Italian influence in Albania and Tripoli.

PROCTOR, REDFIELD. An American statesman, United States Senator from Vermont, died in Washington, D. C., on March 4, 1908. He was born in Proctorsville, Vt., on June 1, 1831, the son of a farmer, manufacturer and store-keeper, in whose honor that town was named. He graduated at Dartmouth in 1851, and at the Albany Law School in 1859, and began to practise in Boston, in the office of his cousin, Judge Isaac F. Redfield. At the beginning of the Civil War he became quartermaster of the Third Vermont Volunteers. He became major

of the Fifth Vermont in 1861, and colonel of the Fifteenth in 1862, and served on the staff of General William F. ("Baldy") Smith. Soon after the war he was made receiver of a marble firm, while practising law in Rutland, Vt., and as the result of this opportunity eventually became the head of the largest marble business in the country. He greatly improved the quarrying business, introducing the most effective machinery and developing transportation facilities, and in 1880 became president of the Vermont Marble Company, which in that year was formed by a combination of two rival companies of one of which he had been the head. Colonel Proctor was a member of the Vermont Legislature in 1867, 1868, and 1888; a member and president of the Vermont Senate in 1874-75; lieutenant-governor of that State in 1876-78, and governor in 1878-80. He was a delegate to several of the Republican National Conventions, and in March, 1899, was appointed by President Harrison Secretary of War, which office he held until 1891, when he resigned to accept an appointment to the United States Senate, in the place of George F. Edmunds, resigned. He was elected by the Legislature in 1892 to fill the unexpired and full terms, and thereafter was successively re-elected. His term would have expired in March, 1911. Senator Proctor's most noteworthy public service was his investigation of the Cuban reconcentrado system in March, 1898. It is probable that this report did more than any other single public utterance to create the state of public opinion which made war with Spain inevitable. After the war, Senator Proctor revisited Cuba, and thereafter made another speech in the Senate in which he strongly opposed the annexation of the island to the United States. The site and building of the Tuberculosis Hospital, at Burlington, Vt., was given to the State by Senator Proctor in 1905, together with an endowment fund of \$100,000.

PROFESSIONAL SCHOOLS. The accompanying table gives statistics of the professional schools in the United States in the years 1906-7. The schools included are those of theology, law, medicine, dentistry, pharmacy, and veterinary surgery. The figures are from the report of the United States Commissioner of Education for 1907.

GENERAL SUMMARY OF STATISTICS OF PROFESSIONAL SCHOOLS FOR 1906-7.

Class	Schools	Students	Increase (+) or decrease (-)	Students having literary degree (a)	Value of grounds and buildings (a)	Endowment funds (a)	Income (a)
Theological	162	9,178	+1,210	3,003	\$15,070,400	\$24,601,600	\$2,445,800
Law	101	16,700	+1,289	3,311	2,872,000	1,496,400	890,800
Medical	152	23,720	-1,204	1,591	12,612,856	2,774,243	1,245,068
Dental	57	6,919	+ 43	75	1,639,681	.....	235,582
Pharmaceutical	71	5,047	- 98	38	580,750	20,398	143,396
Veterinary	13	1,692	+ 247	38	553,100	.....	132,437

(a) So far as reported.

PROHIBITION. The extensive and effective movement against the liquor traffic, which was a very prominent event in 1907, continued its progress during 1908. While the practical results in the latter year were less spectacular than in the preceding, the movement was even more widespread and fully as determined. At the close of the year fully 36,000,000 persons in the United States were living under some form

of prohibition. During 1908 "dry" territory was increased by 325,000 square miles containing a population of 4,300,000. There was much less religious excitement and dogmatism in the agitation in 1908 than in 1907, arguments were listened to in a spirit of greater fairness, and practical questions of expediency were given more weight. While still very powerful in the Southern States the movement led by the Anti-

Saloon League gained noticeably in the North Central and New England States, and made its influence felt in almost every State in the union.

Almost three score temperance measures were introduced into Congress early in the year. Not less than twenty-five of them were of the same intent as the Littlefield bill, namely, to forbid the shipment of intoxicating liquor from "wet" into "dry" territory. The constitutionality of such measures was considered by the judiciary committees of both House and Senate. After arguments had been presented on constitutional limitations Senator Bacon drew up a bill providing that a State, through its police powers, should have absolute control over intoxicating liquors within its borders, from whatever source derived. This measure was not acceptable to the judiciary committee because it would give State authorities control over interstate commerce, a shipment not being considered complete until it reaches the consignee. Still another group of bills, numbering about twenty-five, sought to check the liquor traffic by forbidding the issue of Federal licenses in prohibition territory or until the applicant had secured a valid license from the State, county, or city where the liquor was to be sold. There was a bill prohibiting the manufacture and sale of intoxicating liquors in the District of Columbia; also one establishing there a model high license system. On the other hand three bills favored the restoration of the army canteen.

This flood of bills in Congress was outdone by the introduction of hundreds (estimated as high as 2,500) in State legislatures. Many of minor importance and a few of general significance were passed. In Mississippi, where 69 of the 76 counties had already adopted prohibition by local option, the legislature voted unanimously in February for a State prohibitory law to take effect Jan. 1, 1909. The North Carolina legislature passed a similar law to take effect on the same date, provided the same be ratified by the people. The popular vote on May 26 resulted in a majority of 44,000 for the new law. In this State 69 of the 98 counties were already no-license, the remainder having either licensed saloons, or county dispensaries. This is the first Southern State to adopt statutory prohibition by popular vote. It is noteworthy that the campaign was almost entirely free from agitation by professional temperance orators and demonstrations by women and children. Although the constitution of Oklahoma embodied State prohibition, it also included permission to the State to establish a dispensary system for the sale of liquor for medicinal purposes and of alcohol for industrial and scientific uses. Under this proviso the Billups law (popularly dubbed "Billups' Booze Bill") was passed March 24, authorizing the establishment of a State agency and of local agencies in towns of 1,000 or more. This law provides that all State and local agents should be appointed by the governor; that liquor sold by local agents must be furnished by the State agent and be stamped by the State; that liquor could be sold only on a physician's prescription; and that careful weekly reports must be sent in. It was viewed by some as a practical and effective means of greatly reducing the illicit traffic cultivated by prohibition and of thereby reducing the demoralization resulting from continued violation of law. However, much opposition developed to the new scheme, and

through resort to the initiative and referendum the legislative enactment was referred to the voters for approval in November. They rejected it, thus forcing the State authorities to close out the new dispensary system, and putting the State once more on a strictly prohibitory basis. The Ohio Legislature passed a law forbidding private liquor clubs in dry territory. More important, however, was its enactment providing for county local option. Under this law, in effect Sept. 1, 1908, fifty-seven counties voted dry before the end of the year, closing 1,902 saloons, and making 62 out of the 88 counties in the State dry. This law contains the noteworthy provision that if a county having dry towns (under previous local option laws), votes wet, the dry towns shall remain dry; but if a county having wet towns vote dry, all towns become dry. In West Virginia a vigorous Sunday closing law was enacted; it requires that saloons be closed from midnight Saturday until 5 a. m. Monday, during which time no one shall be allowed on the premises for any purpose, the bar shall be open to full view from the street and a light shall be kept burning in the room.

During the year the activity of the Anti-Saloon League, especially in extending prohibition by local option, reached to practically every State in the union. The general superintendent of the league stated at the end of the year that approximately 11,000 saloons had been closed in the United States during 1908. The local option movement was very strong in New England towns, especially in Massachusetts, Rhode Island, and Connecticut. In Massachusetts 20 out of 33 cities and 260 out of 320 towns were no-license at the close of the year. The substantial argument in New England in favor of closing the saloons was the increased economic welfare of the laboring population and the increased efficiency of labor resulting therefrom. In Rhode Island, a new law limiting the number of saloons to one for each 500 inhabitants, closed 158 saloons in Providence on Dec. 1. At the same time the city raised the license fee of retailers to \$1,000 and of wholesalers to \$1,500. In Arkansas and Texas the local option movement had gone so far by the end of 1908 that State prohibition was fully expected in 1909. In Kentucky 96 out of 119 counties, and in Virginia 71 out of 100 counties, were "dry."

The political activity of the saloon is arousing greater interest. At the November meeting of the National Municipal League much attention was given to this subject. In New Jersey a State Excise Commission appointed by the governor to take evidence on this and other questions connected with the saloon sent in a majority report on Dec. 15 finding that local judges, sheriffs, prosecutors, and mayors were largely under the domination of the manufacturers and dealers in liquors. The commission reported that these officers were subject to such domination because they owed their election to political leaders who were in turn under financial obligations to liquor dealers. A minority report did not concur in this finding of the majority. At Atlantic City, New Jersey, during the summer, the failure of local authorities to enforce the Sunday closing law, and an apparent defiance of the law by the liquor dealers, led to a determined assertion of the authority of the State by Governor Fort.

EFFECT ON LIQUOR TRADE. The most general grounds of opposition to the saloon are its alleged league with vice, gambling, and crime, its corruption of politics, and its nefarious control of city governments. Both brewers and retailers admit that the public has a just grievance, but each blames the other for existing conditions. Especially do the retailers claim that the brewers, by stimulating competition and by obtaining a mortgage on the retail business through the advancement of money and goods, have forced them to add to their incomes by conniving with vice and crime. The brewers have come to insist that unless the saloon is reformed the public will abolish it. To assist such reform and to offset the prohibition wave the National Model License League was formed in 1908 with the editor of *The Wine and Spirit Gazette* as president. It has ample funds and promises a vigorous campaign. The convention of the National Wholesale Liquor Dealers' Association at Niagara Falls in June condemned prohibition and local option as resulting in the confiscation of property, and yet recognized that abuses existed in the liquor traffic. Resolving that the licensed saloon properly regulated was the surest and safest method of promoting temperance, the association pledged itself to assist in placing the saloon business on the same plane as all other commercial interests. This new attitude of the trade was shown in an agreement made between brewers furnishing more than 90 per cent of the beer sold in saloons and hotels in New York city and the Committee of Fourteen for the Suppression of Raines Law Hotels. The brewers agree that when a committee to be appointed by the Board of Trade shall decide that any hotel or saloon is a disorderly house they will discontinue to supply beer to such premises and do all in their power to close it up. To carry out such ideas the Model Legal License League has been formed. For the first time the prohibition movement has cut down the production of liquor. The report of the Internal Revenue Bureau for the year ending June 30, 1908, showed a decrease of \$17,998,072 in receipts, as compared with the preceding fiscal year. Moreover, the receipts for July to Sept., 1908, inclusive, were \$7,262,000 less than during the corresponding months in 1907. The production of distilled spirits from grain during the fiscal year 1908 amounted to 126,989,000 gallons, which was 40,000,000 gallons less than in 1907.

FOREIGN COUNTRIES. ENGLAND. The effort to secure a new basis for the regulation of the liquor traffic aroused in England during 1908 a most violent agitation. The government introduced in the House of Commons in April a measure known as the "Licensing Bill." The imminent prospect of the passage of the bill aroused the liquor trade to utmost fury of opposition. They denounced the bill as a piece of fanatical confiscation. The Balfour law of 1904 virtually recognized a vested right to renewal and surrendered the control of licenses to the brewers by providing that in case of refusal to renew a license money compensation equal to the value of the license should be granted, such payment to be raised by a tax on all saloons of the neighborhood. The number of licensed public houses in England and Wales, including registered clubs, was in 1908 about 125,000. The number of persons employed in the liquor trade directly was variously estimated at from 300,

000 to 700,000. The amount invested in the business was estimated variously at from three-fourths to one and one-half billion dollars. The expenditures for liquor in the United Kingdom in 1907 totaled \$809,681,000. The "Licensing Bill" aimed primarily to recover to the State the control of the traffic by providing that after fourteen years from April, 1909, no compensation should be granted in case of refusal to renew licenses. See GREAT BRITAIN, *History*.

FINLAND adopted through its Parliament a drastic prohibition measure in 1908. This prohibits the distillation, importation, sale, transportation, and storage of alcoholic wares except for medicinal, technical, and scientific purposes, and makes the production and importation of such wares a state monopoly.

SWITZERLAND has experienced considerable agitation over the growing consumption of absinthe. In April the Swiss Parliament was besieged with demands for the initiative against the manufacture and sale of absinthe. In July the law preventing the manufacture and sale of absinthe throughout Switzerland was carried by a large popular majority. (See SWITZERLAND, paragraph *History*.)

For discussions of various phases of the Prohibition movement see the "Regulation of the Liquor Traffic" in *The Annals of the American Academy of Political and Social Science* for Nov., 1908.

PROTESTANT EPISCOPAL CHURCH. A religious denomination which traces its descent as a member of the Anglican communion through churches established in the American colonies, and the Church of England. The church in 1908 comprised in the United States 65 dioceses and 21 missionary districts, including those in Alaska and the insular possessions. There are also eleven foreign missionary districts. There were in 1908 103 bishops of the Protestant Episcopal church, including 28 missionary bishops. Three bishops were consecrated during the year: Henry Douglas Robinson to be bishop of Nevada; Frederick Focke Reese to be bishop of Georgia; and Frederick Joseph Kinsman to be bishop of Delaware. During the year from Nov. 1, 1907, to Nov. 1, 1908, the church lost by death six bishops: Ellison Capers, bishop of South Carolina; Leighton Coleman, bishop of Delaware; Edward Jennings Knight, bishop of Western Colorado; Henry Codman Potter, bishop of New York; Henry Yates Satterlee, bishop of Washington; and George Worthington, bishop of Nebraska. By the death of Bishop Potter, David H. Greer, coadjutor bishop of New York, became automatically bishop of New York. Another notable loss by death was that of Rev. Morgan Dix, rector of Trinity church, New York City, since 1862.

According to statistics collected by the *Living Church Annual* and *Whittaker's Churchman's Almanac* for 1909, the number of communicants in the church in 1908 was 886,403, an increase of 25,405 over the figures for 1907. The clergy numbered 5,205, the lay readers 2,456. There were 7,654 parishes and missions and 52,411 persons confirmed during the year; in the Sunday schools there were 437,420 scholars and 48,329 teachers. The total contributions from all sources were \$17,643,330. The foreign missions of the church are conducted in West Africa, China, Japan, Cuba, Mexico, Brazil, Pan-

ama Canal Zone, and Haiti. The church also maintains jurisdiction over certain American churches in Europe and charges a bishop with this oversight. Domestic missions are carried on throughout the United States and its possessions.

Perhaps the most significant incident in the history of the church during the year was the discussion which arose from differences of opinion concerning the interpretation of an amendment to Canon 19, adopted by the general convention at Richmond in 1907. This canon formerly provided that no person might officiate in any congregation "without sufficient evidence of his being duly licensed or ordained to minister in this church." The amendment provided that the bishop of any diocese or district might give "permission to Christian men who are not ministers of this church to make addresses on special occasions." Some held that this permission was restrictive of liberty formerly claimed and largely exercised; others held that it was a dangerous relaxation of the church's law and tradition. Shortly after the conclusion of the general convention strong opposition appeared in a few places to the employment of the privileges of this canon. Rev. William McGarvey, rector of St. Elizabeth's Church, Philadelphia, published a pamphlet in which he charged that the church had, by the enactment of this amendment, wholly revolutionized Anglican and Catholic practice with respect to ministers of other than Episcopal ordination. Other writers took a similar view. Although the amendment to the canon did not legally go into effect until Jan. 1, 1908, several licenses were given by bishops for ministers of non-Episcopal religious bodies to preach sermons in churches at stated services of the church at which the delivery of a sermon is ordinarily expected, and sermons were preached by clergymen of other denominations in Episcopal churches in various parts of the country. This led to eager discussion of the meaning of the canon as amended by the House of Bishops in the convention. Certain of the clergy of the Protestant Episcopal church contended that its claim to Catholicity had been fatally impaired by the possible opening of the pulpits to unorthodox teachers and felt constrained to promote a secession from that church to the Roman communion. In the early part of the year, Dr. McGarvey, mentioned above, with 15 other clergymen, abandoned their orders, applied for deposition, and stated their intention of joining the Roman communion. In addition to this, the Mother Superior and three sisters of the community of St. Mary, of which Dr. McGarvey had been the chaplain-general, entered the Roman church. Similar steps were taken by a few theological students, some members of St. Elizabeth's church in Philadelphia, and some laymen. In the early spring a memorial, said to bear the signatures of 1,163 clergymen, was addressed to the House of Bishops, petitioning this body to "take measures at the general convention of 1910 to expunge from Canon 19 the words which had constituted the amendment," but this petition was not brought officially before the House of Bishops during the year. The bishops have showed themselves very generally conservative in their interpretation of the canon.

During the year there were two movements in the interest of reunion of the Protestant Episcopal church and other bodies. One was the

formation in February in New York of an Anglo-Roman Union, with the object of uniting the Anglicans with the Apostolic See, "the basis being the belief in the Roman primacy." The second movement was inaugurated by Dr. Newman Smyth, a well known congregational clergyman of New Haven. In several articles and addresses he maintained that Protestantism is a passing force, which has largely failed and which must probably be succeeded by a new Catholicism.

The Church Congress of 1908 was held in Detroit, beginning May 12. Among the subjects discussed were: "The Relation of Christianity to Mental and Spiritual Healing"; "The Constructive Value of the Higher Criticism"; "The Civil Mission of the Church"; "The Influence of History upon Theology and upon Religion"; "The Relation of Christendom to Heathen Nations"; "The Place of Organized Christianity in Modern Life"; "The Place of Character in Salvation."

One of the most notable movements of the year was that inaugurated at Emmanuel Church, Boston, which became widely known as the Emmanuel Church Movement. See EMMANUEL MOVEMENT.

PSYCHICAL RESEARCH. The address of the president of the British Society for Psychical Research, Mrs. Henry Sidgwick, appeared in the society's *Proceedings* (vol. xxii, part 57). The president reviewed the work of the society since its beginning. She noted that, in addition to the seven authenticated cases of veridical hallucinations of dead or dying persons, reported for a period of ten years in the Census for Hallucinations, two similar cases had been reported for the decade just closing. The investigation of "telekinesis" has, for the most part she thinks, come to a negative issue. Telepathy, on the other hand, is the most promising subject of inquiry; though the establishment both of the fact of telepathy and of its nature stands in need of further evidence. One theory makes the telepathic agent or vehicle physical, another psychical. The matter is intimately connected with the problem of survival after bodily death. In Mrs. Sidgwick's opinion the society had made a "distinct advance" in this problem through the automatic writings of Mrs. Verrall, Mrs. "Holland," and others, and the trance-writing of Mrs. Piper. "Cross-correspondences" (i. e., automatic communications received by different persons in different places, purporting to come from a common source—as the "Myers control"—and involving "cross-references") were reported by J. G. Piddington in the same number of the *Proceedings*. About 120 experiments were made with six different automatists. Here is an instance of the method: The sitter asks the Myers control (Jan. 16), through Mrs. Piper, to mark his messages sent through other mediums with a sign, "e. g. a triangle within a circle." Twelve days later (Jan. 28) this figure appears in automatic writing by Mrs. Verrall. Many examples of "concordant automatisms" are given in detail. The concentration of interest among "researchers" upon mediumistic evidences of a future life is everywhere apparent in current publications. In America, J. H. Hyslop added to his long list of "research" books a volume of essays (two of them new), called—after the last essay—*Psychical Research and the Resurrection*. The work covered "more or less of the whole field

and may be regarded as a supplement to *Science* and a *Future Life*, with conclusions quite the same." In "subliminal or subconscious mental action" is discovered the key to "mental phenomena." An optimistic forecast of the future of psychical research appeared in *The Coming Science* by H. Carrington, who declared that if "one single fact which the psychical researcher defends be proved true" the current conceptions of science must be remodeled. "We should open communication with a world of spiritual intelligences, they apparently producing phenomena which we are called upon to study; and the solution [sic] of these phenomena will, without doubt, form the coming science." The same author has published during the year *The Physical Phenomena of Spiritualism*. The marvels of mediumship, from Crookes to Paladino, were discussed in light and sprightly dialogue in H. Garland's *The Shadow World*, a book which will attract persons possessed of a curious interest in alleged "psychical phenomena." The author inclines to the belief that mediumship is a matter, not of spiritism, but of "unexplored human biology." As an antidote to *The Shadow World* should be read *The Marvellous Creations of Joseffy* (D. P. Abbott), an account of the clever and mystifying performances of a new conjurer, and *The History of a Strange Case*, written by the same author. The current literature of psychical research displays three notable characteristics: redundancy, optimism, and an increasing recognition of the essential difference between its labors, methods and interests and those of the psychologist.

PSYCHOLOGICAL ASSOCIATION, AMERICAN. See **PSYCHOLOGY**.

PSYCHOLOGY. The achievements for the year 1908 issued for the most part from interests and undertakings which were carried over from the preceding months. General works of value in pure psychology were few. The applications of science to practice, on the other hand, were many and diverse. In them power psychology gave more than she received. She can, however, afford to be generous. Feeling, attention, and the question of "thought-elements" continued to be centres of interest, though their status has not materially changed. Animal psychology and the psychology of the abnormal expand at a rate that is almost pathological.

MEETINGS. The 17th annual meeting of the American Psychological Association was held during the Christmas holidays, at Baltimore, in affiliation with various scientific and philosophical societies. G. M. Stratton, of Berkeley, Cal., was president of the Association. The programme included some thirty papers on general, theoretical, comparative, genetic, social, and educational psychology, and the psychology of the abnormal. The Southern Society for Philosophy and Psychology met in annual session at the George Washington University (Washington, D. C.), Feb. 26-27. The American Experimentalists convened at Harvard University, April 15-16, and the Experimentalists of the Continent at Frankfurt a. M. in the following week.

GENERAL BOOKS AND TREATISES. New systematic works were few. Mention must be made of S. Witasek's *Grundlinien der Psychologie*, an outline of theoretical psychology written from the standpoint of the Austrian school; a standpoint which is so far removed from current English and American thought (though the affilia-

tions are evident to the initiated) as to suffer from neglect. The psychology of feeling and attention was enriched by E. B. Titchener in a volume of eight lectures (*Lectures on the Elementary Psychology of Feeling and Attention*) delivered early in the year before Columbia University. The type of the book is rare. Facts and theories are set forth objectively and in their historical perspective, and interpreted in the light of a psychological system. The volume is useful, both as a repository and as a definite contribution to two difficult chapters of psychology. A small manual by C. E. Seashore (*Elementary Experiments in Psychology*) describes simple experiments, covering a large range of subjects (sensation, perception, memory, association, attention, action, etc.), and was designed as a supplement to introductory courses in the science. The exercises are to be carried through before the student enters the laboratory training courses of the laboratory.

The most important treatise of the year on psychophysics was an experimental and constructive monograph by F. M. Urban. The aspect of psychology which was making the widest appeal outside the science was its applicability to non-psychological ends. This aspect stood out during the year in unusual prominence. Psychological results, sought primarily for their own intrinsic value, were more and more utilized by the "expert" for educational, sociological, artistic, therapeutic, and economic purposes. Humanistic uses of psychological knowledge have created a place for an applied psychology, as the arts and professions of engineering have made a place for an applied physics. The most elaborately wrought out applications of mental science concern education and the treatment of the insane. They exist as "educational psychology" and "mental pathology."

A more recent application was made to law and to the processes of the court. The specific subjects to be considered by the pathologist include the psychology of crime, its detection, its course, its prevention, the mental status of the criminal, the responsibility and qualifications of the witness, the abilities of the juror and the advocate, the role of suggestion and hypnotism, and the credibility of evidence. It is obvious that all these matters involve psychological factors that can be estimated and valued only by persons in possession of an accurate and systematic knowledge of the human mind. The fruit of much recent work in this branch of applied psychology was brought to popular expression in H. Münsterberg's book, *On the Witness Stand: Essays on Psychology and Crime*. As the title implies, the author occupied himself almost exclusively with psychological problems relating to the witness in the court of law, his liability to illusory perception and memory, his bias, his prepossession, his suggestibility, and with the means of acquiring testimony which is objectively as well as subjectively truthful and reliable. Much pertinent material which was common property of psychologists was, for the first time, made accessible to the general reader. The dubious character of some of the methods proposed will not invalidate the main contention of the book—that the taking of testimony involves mental facts which can be properly considered only by the psychologist.

The Psychology of Advertising, by W. D. Scott, a volume whose studied attractiveness should effect an advertising of psychology, illustrated

small bits of psychological fact by abundant reference to current advertisements, futile and successful. The book was considered certain to interest the advertisers. The ethics of the work was another matter. The great moral desideratum is, of course, the exercise of a psychological control that shall fit the attractiveness of the display to the worth or indispensability of the article vended.

Among the applications of psychology at two removes stands the practice of clergymen of certain therapeutical methods which call for acquaintance with facts of mind. Much was heard during the year of this practice. (See EMMAUEL MOVEMENT.) One or two publications should be noticed. *Religion and Medicine*, by E. Worcester, S. McComb, and I. H. Coriat, is the authentic description of "the work in behalf of nervous sufferers which has been undertaken in Emmanuel Church, Boston." It discussed "the religious and scientific principles" on which the work rests. The field is the field of functional nervous disorders and the chief method is psychotherapy. Neither was new; the only feature of the undertaking that calls for comment was the unusual union of clerical, medical, and psychological functions. The psychology of the book was typical of much current writing. The psychologist recognized it at a glance. It invariably begins by regarding consciousness as a reservoir fed from the unmeasured depths of the subconscious. It never fails to put in all the powers and faculties and resources required for later emergencies. It makes glib reference to Schopenhauer and Frederic Myers, W. James and W. H. Thomson and T. J. Hudson. It delights in authorities and extols (without understanding) the experimental method and the latest opinion. It knows no restraint in speculation and is seldom troubled by the logic of a theory. The success of the whole undertaking is another matter. With the three most powerful sanctions that move civilized man, namely, religion, science, and the art of healing, success could scarcely be wanting; and (perhaps fortunately for mankind!) the efficacy of the sanction does not necessarily stand in direct proportion to the knowledge of the human agent. Two new social psychologies appeared during 1908: *An Introduction to Social Psychology*, by W. McDougall, based upon the doctrine of instincts, and *Social Psychology*, by E. A. Ross, which sets out from the facts and fancies of imitation and suggestion.

SENSATION. A moderately warm object (still not warm enough to produce pain) when brought into contact with the skin gives rise to the experience of heat. This experience differs from warmth, from cold, and from pain. Thunberg suggested in 1896 that "hot" was due to the simultaneous excitation of cold-organs in the skin (which produce, when excited by a "warm" stimulus, paradoxical cold) and warmth-organs. Sydney Alrutz (University of Upsala), in an article (*Zeitsch für Psych.*, xlvii, 161, 241), brought further proof of the double origin of "heat" by demonstrating that the "latent time" of paradoxical cold and of heat coincide; i. e., that the experience of heat and of paradoxical cold arise the same length of time after the hot stimulus is applied. Alrutz found, moreover, that in the mouth pure "warmth" is producible only on the outer and inner lips. Elsewhere a temperature sufficiently high to excite the warmth-organs excites also (paradoxically) the cold-

organs and heat (not warmth!) is experienced. This author thinks that in its qualitative character heat stands to warmth and cold as orange stands to yellow and red; it is like both but contains neither. Upon this point, introspections differ.

In 1907 was noted Bingham's case of difference-tones in a subject who had lost the tympanic membrane,—a case which offered difficulty to the current Helmholtzian theory of audition, since that theory found the cause of difference-tones to lie in the asymmetry of this membrane, the "drum-skin" of the ear. In 1908 L. Hermann came forward (*Archiv für die gesamte Physiologie*, cxvii, 419) to save the principle of the theory by transferring the asymmetrically vibrating body from the ear to resonant bodies outside, or, for some cases, to the bones of the head. Two vibration-rates imposed upon a body possessing "asymmetrical elasticity" (e. g., the common support of two tuning forks or of two wind-blown reeds) may give rise to one or more combination (difference or summational) tones. Thus all sounds of this class are referred to a single set of conditions. The psychology of audition seems then to have superseded the old distinction of objective and subjective difference tones. (Cf. *Combination Tones and Other Related Auditory Phenomena*, 1908, by J. Peterson.) The nature of the alkaline taste (German *Laugc*) has been much disputed. Sometimes it has been held to be an elementary taste, like salt or bitter; at other times, a mixture of taste qualities (e. g., bitter and salt, Goldscheider). W. Sternberg maintained (*Arch. für die gesamte Physiol.*, cxv., 526) that it was not a taste at all, since it can be set up upon any part of the skin or mucous membrane. An analytic study of tickling (E. Murray, *Amer. Journal of Psych.*, xix, 289) revealed a close relationship of the tickle to contact-sensation and to pain. Tickling was defined as "an intensely vivid complex of unsteady, ill-localized and ill-analyzed sensation, with attention distributed over the immediate sensory contents and the concomitant sensations reflexly evoked."

FEELING. The most deeply entrenched of all the theories of feeling is the *teleological*,—the theory, namely, that finds pleasure useful and beneficial, pain harmful and injurious. It is of the common-sense kind and supports itself by apt and striking illustrations taken from everyday life. As a scientific doctrine, however, it has long been unsatisfactory, and at last a competent critic has arisen to expose its bad logic. D. C. Nadejde began a searching examination (*Die biologische Theorie der Lust und Unlust*, Heft 1, 1908), which was one of the year's achievements in the psychology of feeling. It will no longer be possible to make uncritical reference to a theory that owes its respectability rather to its antiquity and honorable associations than to its logical cogency. In *Les inclinations, leur rôle dans la psychologie des sentiments*, G. R. d'Allonnes attempted, but without signal success, to show that emotions arise from visceral disturbances, and not from the objective and expressive signs (such as weeping, trembling, shivering, blanching) upon which the James-Lange theory lays stress. The author's chief support was a single pathological case, a woman who showed visceral anæsthesias and whose emotions were abnormally reduced. In a speculative paper (*Psych. Rev.*, xv, 201), M. Meyer suggests that *intensity* of neural action may be the substrate of pleasantness and un-

pleasantness. Other theories of affection were reviewed and criticised. E. B. Titchener hazards "the guess that the 'peripheral organs' of feeling were the free afferent nerve-endings distributed to the various tissues of the body" (*Lectures*, etc., 292). The "psychogalvanic reflex" (characteristic deflections of the galvanometer connected with certain neural and apparently also conscious functions) developed during the year a widespread interest. Attempts were made in various quarters to add the galvanometer to the appliances used in the expressive methods of psychology. It was too early, however, to say what the psychophysical importance of the "reflex" was. For some of the more recent discussions see Peterson and Jung (*Brain*, July, 1907), Ricksher and Jung (*Journal of Abnormal Psych.*, Dec., 1907-Jan., 1908), Binswanger (*Journal für Psych. und Neur.*, x, xi, Bietrag), B. Sidis and H. T. Kalmus (*Psych. Rev.*, xv, 341).

PERCEPTION. Attention was called last year (YEAR BOOK, 1907, 660) to Linke's psychological explanation of stroboscopic movement, movement produced, *e. g.*, by kinetoscopic or "moving-picture" devices. Linke's work, carried out under W. Wundt's guidance, drew a perfect avalanche of opposition and protest (*Zeitsch. für Psych.*, xlv, 345, 429; xlvii, 203, 291, 297, 321). Wundt and Linke treated the stroboscopic perception of movement as an illusion resting upon mental (assimilative) processes. The illusion lies in the failure to note the successive phases of the object presented with "blank" intervals, the observer seeing a single object in motion instead of what is really "given"—a series of different objects at rest. The adverse critics, K. Marbe and E. Dürr, referred the perception to physiological conditions which fall, in part, under Talbot's law of the fusion of successive stimuli. The discussion, which grew exceedingly complicated and technical, was of psychological importance because it concerns the description and explanation of one of the major groups of perception, the perception of moving objects. It touched a more popular interest through its relation to the various commercial devices for the scenic production of living and active things. Wundt's contentions can not be said to have been substantiated during the year. H. C. Stevens discovered (*Psych. Review*, xv, 69), in the course of an investigation into the perceived size of objects seen in indirect vision, that an object lying on one side of the visual field tended to appear either larger or smaller than the same object when transferred to the other side. This difference of apparent size Stevens connected with right-handedness, because he noticed that right-handed persons tended to overestimate the size of objects set on the right, while left-handed persons more frequently overestimated objects on the left. If the two things are connected, however, it is not easy to determine which is cause and which is effect. The psychological problems involved in reading were being attacked in 1908 and the few years previous, from various directions. The ocular functions (the nature and the rate of movement and pause of the eyes, the definition of the retinal image), perception of the symbols on the page, attention, the connection of reading with speech, the function of mental imagery, and the conscious processes underlying the meaning of the words read, have all been investigated. These matters, together with the history of reading

and writing and the pedagogy of reading, were brought together in orderly arrangement by E. B. Huey (*The Psychology and Pedagogy of Reading*, 1908).

ATTENTION, ASSOCIATION, IDEATION AND THOUGHT. *L'Attention*, a French work by an American psychologist, W. B. Pillsbury, was brought out during the year in English, in a considerably modified and expanded form. The subject of attention is exceedingly complicated and difficult. The complication arises less from the nature of attention itself than from (1) the infusion into it of various non-psychological factors and issues and (2) the wide interrelations of attention and other mental facts and functions. The book under discussion set these matters into their just perspective and brought together the compendious literature of the subject. Titchener's book, already cited, regarded "sensory clearness" as the fundamental aspect of attention. Some years ago, R. Ranschburg noted in experiments with abnormal observers that memory for a line of figures (as 67428) was weakened if the figures were followed by a similar line (as 67538). He explained this fact by assuming that the like or homogeneous elements in the two memories inhibited each other, or, rather, that they led to a mutual cancellation in the underlying cerebral processes. The explanation has never been satisfactory, and the problem was reopened by A. Aall (*Zeitsch. für Psych.*, xlvii, 1), who performed new experiments and reviewed the whole method at length. Aall went deeper than Ranschburg and found that the confusions and forgettings in the like objects studied (both letters and figures) rest upon no less than seven different factors. The memorial disturbances arise, not from the clash of like sensations, but from the more complex processes of reproduction and recognition. The matter was not altogether settled. It needed to be worked over under simpler conditions, and especially did the clashing of similar memories need to be brought into relation with the facilitation which is effected through repetition (learning by heart and habituation). Experiments conducted in the laboratory of the University of Illinois indicated that the ideational type tends to change in school children from the visual (fourth grade), through the motor (sixth grade), to a balanced type (about the eighth grade), and back to a visual type in university years (*Psych. Bulletin*, v. 98).

MENTAL INHERITANCE. An interesting sequel to Heyman and Wiersma's work of 1907 (see YEAR BOOK, 1907, 661) appeared (*Zeitsch. für Psych.*, xlv, 321). The Dutch psychologists had found by their use of the questionnaire method that women are, on the average, more emotional, less egotistical, and less intellectual than men. To this result a woman raised the pertinent objection that the census was taken and the standards set by men. The objection was met by the authors in a supplementary census conducted by sixty-five women. The former results were confirmed, except that the intellectual functions fall out somewhat differently for the sexes. The new census gave men the first place where ideational complexes of wide extent are involved, but accorded to women greater intuitive powers. Thus honors between the two sexes were again divided!

ABNORMAL. Alienists and psychopathologists continued to disagree upon the meaning of "mental disease," its relation to "symptoms," and the part played by mind in the origination

and development of mental disorders. A. Meyer expanded (*Psych. Bull.*, v. 245) his "dynamic psycho-biological" conception of abnormal states, showing a preference for the hybrid terms "instinct," "habit," "capacity," "reaction-type," and "adjustment," to either the more technical and analytical terms of psychology or the notions of disease current in medicine. E. Bleuler prefers, on the other hand, to distinguish between "somatic" diseases and mental symptoms, while C. G. Jung takes a middle ground and admits consciousness to a limited participation in the causation and course of disorders. Meyer's new list (p. 255) of reaction-types (really a classification of insanities) is of interest to the psychologist of the abnormal. However, its thin disguise of older classificatory schemes suggested that this list is not yet quite definitive. *A Mind that Found Itself: An Autobiography* (C. W. Beers) is the extraordinary account by an educated layman of experiences prior to and during a cycle of maniacal-depressive attacks. The experiences are recounted in detail and with great vividness. As a human document the book possesses unusual interest. The motive which led to its publication was, however, not personal but social and moral. The work is a plea for reform in the conduct of insane hospitals and sanatoria and in the training of physicians and attendants for the intelligent and humane treatment of patients.

ANIMAL PSYCHOLOGY. *The Animal Mind* (M. F. Washburn), anticipated in last year's review (p. 663), appeared in 1908. Its chief value lay in its psychological interpretation of the objective facts of animal activities, though the students of behavior were not slow to recognize its service to the biological sciences as well. The book furnished an object lesson, much needed at the present time, in the difference between animal psychology and the study of animal behavior. Current biological tendencies in American psychology minimized this difference. As a result, much work that concerns itself primarily with the adaptive activities of animals is accepted in some quarters as a direct contribution to the mental sciences. Reviews of recent investigation upon animals (*Psych. Bull.*, v. 179; *Journal of Comp. Neur. and Psych.*, xviii, 309, 511; *Journal of Abnormal Psych.*, Feb.-March) make it clear that attention is mainly directed to the sensory equipment of animals and to those modifications of behavior due to repetition of performance. In an article on the "phyletic background of genetic psychology," G. S. Hall entered a plea (*Amer. Journal of Psych.*, xix, 149) for the study of instincts, especially the study of the origin and evolutionary development of instincts in the race. Instinctive behavior is, he maintained, superior to rational behavior because it "regulates conduct in the interest of the species at every point, while consciousness is selfish and is exactly measured by the degree to which the individual has broken away from the dominance of the race and set up for himself against it." The conclusion seems to be the result of taking one's stand and then picking one's facts. The reader is left with the impression that facts of the opposite tenor might as easily be found. Indeed, E. L. Thorndike, starting with a different set of associations, works to quite the opposite conclusion (*Essays Philosophical and Psych.*, etc., p. 587). He brings himself to believe that the human sort of consciousness makes for individual satisfaction, and

that this in turn conduces to "meliorism for the species." It is a striking coincidence that almost upon the same day "human reason" should have been pronounced both "a disease of our infant race" and an agent of "human satisfaction." Experiments made by S. Smith (*Journal of Comp. Neur. and Psych.*, xviii, 499) and confirmed in part by the present writer and others indicated that a degree of "educibility" is possible in so simple an organism as *paramecium*. What "education" means for the protozoan consciousness remains, however, to be seen. From the continuous observation of individual amebas, for several days together, D. Gibbs concluded (*Amer. Journal of Psych.*, xix, 232) that these organisms display, like higher forms, alternate periods of activity and rest. This alternation cannot, however, be called in strictness a rhythm. The remarkable orienting feats among birds have long furnished a puzzling problem to comparative psychology. Factors already urged are visual landmarks, and the direction of sunlight. Neither of these "cues" seems sufficient to explain the extraordinary homing flights of terns sent out far beyond their normal range, i. e., over a thousand miles (J. B. Watson, *Psych. Bull.*, v. 51). The study of animal imitation was advanced during the year by new experimental material. Watson found in his work with monkeys no imitation either of his own acts or those of other monkeys (e. g., the use of a rake to draw in food) that involved the intentional bending of means to ends—the inferential type of imitation (*Psych. Bull.*, v, 169). C. S. Berry, on the other hand, discovered (*Journal of Comp. Neur. and Psych.*, xviii, 1) that one member of a family of Manx cats would, under some circumstances, repeat the successful manoeuvres of another member, such as opening a trap door and getting food. This repetition usually came suddenly, after a delay, and it was observed both when the imitator was itself fed and also when it only *saw* the performing cat fed. Berry called this "imitation," and it undoubtedly was imitation in the sense of a performance with a "model." Whether he is right in calling it "voluntary imitation" may fairly be questioned. Attention to the model seems to be involved both with the cats and in the case of monkeys reported from Harvard University at the December meeting of the American Psychological Association. Watson's monkeys certainly were attentive enough and dexterous enough; their failure to repeat the model (the act seen) may have been due to their insufficient analysis of the performance. The relatively small part played by imitation of a high order in the monkey's life is probably just owing to his great skill in learning *without* a model. Recent studies have shown the importance of distinguishing *biological* imitation (repetition of the performance of another) and *psychological* imitation, a mode or modes of conscious acquisition. It was likely that not one but several different forms or grades of psychological imitation will be found to exist among the higher vertebrates.

PSYCHOTHERAPY. See EMMANUEL MOVEMENT; PSYCHOLOGY.

PUBLIC HEALTH. See FOOD AND NUTRITION.

PUBLIC HEALTH ASSOCIATION, AMERICAN. A society founded in 1872 for the advancement of sanitary science and the promotion

of measures for the application of public hygiene. The work of the Association is divided into four parts. At the meetings of the General Association, general subjects in relation to sanitary science are presented. The Laboratory Section, the Section on Vital Statistics, and the Section of Municipal Health Officers consider subjects coming within their special jurisdiction. The next meeting of the Association will be held in October, 1909, in Richmond, Va. The present officers of the Association are: President, Dr. Gardner T. Swarts, Providence, R. I.; First Vice President, Dr. R. M. Simpson, Winnipeg, Manitoba; Second Vice President, Dr. Jesus Chico, Guanaquato City, Mexico; Third Vice President, Major Charles F. Mason, M. D., Washington, D. C.; Secretary, Dr. Charles O. Probst, Columbus, Ohio; Treasurer, Dr. Frank W. Wright, New Haven, Connecticut.

PUBLIC LANDS. See LANDS, PUBLIC.

PUBLIC UTILITIES COMMISSIONS. See ELECTRIC LIGHTING.

PURE FOOD LAWS. See FOOD AND NUTRITION.

PYOCYANASE. See SERUM THERAPY.

QUAKERS. See FRIENDS.

QUEBEC. A maritime province of Canada. Area, 351,873 square miles. Population in 1901, 1,648,000. Quebec, the capital, had 68,840 inhabitants in 1901. For details respecting population, education, production, commerce, etc., see CANADA. The provincial government consists of a Lieutenant-Governor, appointed by the Governor-General of Canada and acting through a responsible Ministry, and a bicameral legislature consisting of a Legislative Assembly of 24 members appointed for life, and a Legislative Assembly of 74 members elected for five years. The present Lieutenant-Governor is Sir C. Alphonse P. Pelletier. The present Premier is Sir Lomer Gouin.

HISTORY. The session of the provincial legislature for 1908 began in February and was prolonged on April 26. The legislation included measures furthering the policy of the preceding two years, which aimed at the building and equipment of new schools, technical, commercial, and normal, and developing colonization and agriculture. In May a general election was decided upon, and it was held on June 8, when the Liberal government of Premier Gouin, which had been in power three years, was returned by a large majority. The chief plank of the platform on which the Premier appealed to the people was the increase of the grant for education to \$1,000,000 annually. The Conservatives elected fourteen members, and the Nationalists, under the leadership of Mr. Bourassa, two. The National party proved to be practically negligible. It stood for an idea of separate French political development which is more of a survival from a past state of things than a growing movement to be reckoned with. During the year the finances of the province, owing to economy of administration, were put upon a sound basis, and the last payment of the debt which had been standing for thirty years was paid. The area of the province was increased by the addition of the district of Ungava. For the Ter-centenary Celebration, see under CANADA.

QUEENSLAND. A state of Australia. Area, 670,500 square miles; population at the end of 1906, 535,113. Brisbane, the capital, had

an estimated population of 132,468 at the same time. (For details regarding population, education, production, etc., see AUSTRALIA.) The executive power is vested in a Governor appointed by the Crown and acting through a responsible ministry. The Parliament consists of a Legislative Council of 44 members, appointed for life by the Governor on the advice of the Ministry; and a Legislative Assembly of 72 members, elected for three years by universal suffrage, irrespective of sex. The present Governor is Lord Chelmsford; the Premier, W. Kidson.

HISTORY. After the February elections, which returned 25 Ministerialists, 25 Kidsonites and 22 Laborites, Mr. Kidson succeeded Mr. Philip as Premier. Parliament opened on March 3. The government announced that it would introduce measures for a referendum in the event of a deadlock between the two houses and for extensive railway building. In October Mr. Kidson, having formed an alliance with Mr. Philip, the former Premier, there was a division in the ministry and two members resigned. The reconstituted ministry was still in favor of the progressive legislation proposed, but was distinctly anti-Federal. On the reopening of Parliament on Nov. 17, Lord Chelmsford, the Governor, pointed to the fact that while settlement was going on with great rapidity it was not in proportion to the opportunities afforded, and excellent land still remained unoccupied. Relations with the Federal government were, he said, still the cause of anxiety. See AUSTRALIA.

RABIES. The increasing prevalence of rabies in the early part of 1908 was the subject of considerable agitation and popular alarm. The yearly mortality from this disease in the United States varies between 100 and 300. In the District of Columbia during the first half of the year 43 persons were bitten by dogs infected with rabies, and at the request of President Roosevelt the commissioner ordered all dogs muzzled for the ensuing six months. According to Hart (Bureau of Animal Statistics), in the preceding 12 months a positive diagnosis of rabies was made in 44 cases and of these 33 were found in the District of Columbia. These 33 animals bit 16 people, 46 dogs, 2 horses and 2 cows. This condition of affairs was believed fairly representative of the rest of the country. About 16 per cent of the victims of the bites of rabid animals develop hydrophobia, the remainder escaping through the protection afforded by clothing, on account of the slight extent of the injuries, or (especially) because the nerves escape injury. In New York City, during the summer months, 60 special policemen were detailed by the Department of Health to destroy all stray, unmuzzled or unleashed dogs, whether licensed or not. The effect of this crusade was to allay popular apprehension and to impress upon dog owners their duties to the community. Professor Woodhead called attention to the entire absence of rabies in Great Britain, due to a regulation, strictly enforced, that every dog wear a muzzle. At the same time, a strict quarantine against imported dogs was established, with the result that in 6 months' time the disease was eradicated in the United Kingdom. In the United States control of the disease is rendered difficult by the diversity of local ordinances and the opposition of misguided persons who object vociferously to the alleged cruelty of muzzling dogs. The method approved by the New York Department of health for dealing with cases of real or sus-

pected cases of rabies was to insure prompt and thorough cleansing of the wound, bleeding being favored by warm bathing and suction; ragged wound edges to be trimmed off and the wound cauterized. If feasible, the suspected animal is preserved alive and placed under expert observation; or, if killed, the head or brain forwarded in a sealed glass jar for examination at the laboratory.

RACING. The 1908 racing season, especially as far as the New York State tracks were concerned, ended most disastrously, because of the passage of the Agnew-Hart bills by the State legislature. By these bills bookmaking and gambling at race tracks was placed in the same position as regards the laws as elsewhere, and consequently were suppressed by the police. Almost immediately after they were passed the attendance at the track meetings in the vicinity of New York City fell off to so great an extent that the jockey clubs and racing associations incurred heavy losses or gave up their meetings. (See *NEW YORK*.) The racing itself was of a high standard, several horses making notable performances. *Colin*, owned by J. R. Keene, won three races and was unbeaten in fifteen starts. *Ballot*, also owned by Mr. Keene, was unbeaten in five starts, and *Priscillian*, owned by A. Belmont, was unbeaten in seven starts. J. E. Madden's *Sir Martin* won eight races, and A. Belmont's *Fair Play* and J. R. Keene's *Maskette* also were consistent winners. As in the previous year, the list of winning owners was headed by J. R. Keene, the total amount of whose winnings was \$287,912. Other winning owners and the amounts won were: J. E. Madden, \$170,453; A. Belmont, \$112,625; H. P. Whitney, \$76,880; F. F. Forsythe, \$37,545. Notter and Dugan were the two leading jockeys, the former's record being: first, 140; second or third, 213; unplaced, 171; and the latter's: first, 126; second or third, 158; unplaced, 254. In England the winning owner was J. B. Joel, with \$131,230, and in France, W. K. Vanderbilt, with \$263,640. The winning jockey abroad was Danny Maher.

New records made in the United States during 1908 were: $3\frac{1}{2}$ furlongs, *Carmiso*, in 40 2-5 seconds; $4\frac{1}{2}$ furlongs, *Preceptor*, in 51 seconds; $5\frac{1}{2}$ furlongs (circular track), *Colloquy*, in 1 minute 52 seconds; 1 mile, *Centre Shot*, in 1 minute 37 1-5 seconds; 1 1-16 miles, *Royal Tourist*, in 1 minute 44 1-5 seconds; 15-16 miles, *Ballot*, in 2 minutes 9 3-5 seconds; 1 mile and a furlong, *Vow Populi*, in 1 minute 50 seconds. The entries in the English Derby included A. Belmont's *Norman III*, a 6-to-1 favorite, and W. K. Vanderbilt's *Seasick II*. Neither of the American entries, however, figured, the event going to the Italian filly *Signorinetta*, whose time was 2 minutes 39 4-5 seconds. The record for this race is 2 minutes 36 4-5 seconds, made by *Spearmint* in 1906. Mr. Vanderbilt's *Seasick II* ran a dead heat for the French Derby, and *Northeast*, another Vanderbilt horse, won the Grand Prix de Paris.

The principal racing events in the United States, winners and time were: Kentucky Derby, *Stone Street*, 2:15 1-5; Metropolitan Handicap, *Jack Atkin*, 1:38 3-5; Suburban Handicap, *Ballot*, 2:03 (record); Futurity, *Maskette*, 1:11 1-5 (equaling record); Brooklyn Handicap, *Celt*, 2:04 1-5.

The trotting and pacing season contributed several new records, the best performance being: Stallion, *Allen Winter*, 2:06 $\frac{1}{2}$; two-year-old filly, *Czarevna*, 2:12 $\frac{1}{2}$; three-year-old filly, *Leading Lady*, 2:07; green stallion, *Fleming Boy*, 2:07 $\frac{1}{2}$; gelding, *Highball*, 2:03 $\frac{3}{4}$; three-heat race, *Hamburg Belle*, 2:05 $\frac{1}{4}$ (average); three heats and third heat over a two-lap oval, *Locust Jack*, 2:10 $\frac{1}{4}$, 2:10 $\frac{1}{2}$, 2:09. In pacing, the stallion *Minor Heir* made a record of 1:59 $\frac{1}{2}$, and the mare *Citation* equaled the record of 2:01 $\frac{3}{4}$, made by *Ecstatic*.

RACQUETS AND COURT TENNIS. The American court tennis championship tournament was held under the auspices of the New York Racquet and Tennis Club, April 8-12. In the preliminary rounds E. H. Miles, England, defeated C. E. Sands, United States, 6-2, 6-1, 6-3; Payne Whitney defeated T. A. Havemeyer, 5-6, 6-4, 6-0, 6-0. In the finals Miles defeated Whitney, 6-4, 6-0, 6-1. The challenge round between Jay Gould, the champion, and Miles resulted in an easy victory for Gould, the score being 6-2, 6-4, 6-1, 6-2. In the preliminaries for the gold racquet championship (Tailer emblem), held at Tuxedo, P. Lorillard, Jr., defeated Kingdon Gould, 6-4, 6-4, 6-2, and in the finals Jay Gould defeated Lorillard, 6-0, 6-1, 6-0, thereby becoming permanent owner of the trophy. The world's amateur championship was decided in London, May 9-16. In this tournament the finals were won by E. H. Miles, who defeated V. H. Pennell, 4-6, 6-5, 6-1, 6-3. Jay Gould, in the challenge round, retained the title by defeating Miles, 6-0, 6-2, 1-6, 6-1. The gold racquet championship tournament (Mackay emblem), held at Tuxedo, resulted in a victory for J. G. Douglas, New York, who defeated F. F. Rolland, champion of Canada, 15-8, 16-6, 18-16. In the national amateur racquet championship, Boston, Feb. 17-22, Q. A. Shaw defeated P. D. Haughton in the finals, 9-15, 15-7, 15-3, 11-15, 15-5. The championship in doubles was won by Scott and Boylston of Boston. In the annual New York-Philadelphia inter-city competition, the New York representatives were successful. The world's professional champion, Cecil Fairs, England, was challenged to defend his title by Jay Gould, the contest to take place in 1909.

RADIOACTIVITY See **CHEMISTRY**.

RADIOCHEMISTRY. See **CHEMISTRY**.

RADIOTHERAPY. See **PHOTOTHERAPY**.

RADIUM, EFFECTS OF ON PLANT LIFE. See **BOTANY**.

RADIUM SALTS, See **CHEMISTRY, INDUSTRIAL**.

RAE, CHARLES WHITESIDE. An American naval officer, died in Washington on May 13, 1908. He was born in Hartford, Conn., on June 30, 1847, graduated at the Rensselaer Polytechnic Institute in 1866 and at the Naval Academy in 1868, as third assistant engineer. He became second assistant engineer in 1869, assistant engineer in 1874, past assistant engineer in 1875, chief engineer in 1893. Under the Personnel law he received the rank of commander in 1899 and that of captain in 1903. He was a member of the Nicaragua and Tehuantepec surveying expeditions in 1870-71. During the Spanish War he served on the *Iowa* and was advanced three numbers in grade "for eminent and conspicuous conduct" at Santiago. In 1903 he

became engineer-in-chief of the navy and chief of the Bureau of Steam Engineers, with the rank of rear admiral.

RAILWAYS. Two causes combined to make the year 1908 a trying one for the railways of the United States. First, it was an after-panic year, and second, it marked the putting into effect of a vast amount of more or less hostile and restrictive legislation enacted by Federal and State legislatures in 1907. Not since the panic of 1893 did the railways suffer so acutely from the standpoint of decreased traffic. Gross earnings did not begin to fall off sharply after the panic of October, 1907, until the last of December of that year. In January, 1908, earnings dropped abruptly, reflecting the cumulative effects of the financial disturbances. The decrease in January was 12.5 per cent and in May the decline had reached its maximum, with a decrease of more than 22 per cent. The recovery began in September, when crops began to move, and by the end of November traffic was within 3 per cent of that in 1907. The number of idle freight cars is also a good index of the contraction of business. In November, 1907, there was a shortage of 44,000 cars, which changed by January, 1908, to a surplus of 340,000 cars. In May this surplus had increased to 410,000 cars. In other words, one-fourth of the freight cars of the country were standing idle, with no freight to be moved in them.

RECEIVERSHIPS. The mileage of railways which went into the hands of receivers during 1908 as a result of the business and financial depression following the panic was larger than in any year since 1893, which was the last severe panic year. A total of 24 roads operating 8,009 miles of track and having total outstanding capital liabilities of \$596,359,000 were turned over to receivers. The two most important roads included in the list were the Seaboard Air Line, with 2,611 miles, and the International & Great Northern, with 1,106 miles. The so-called Gould roads were particularly hard pressed. Besides the International & Great Northern, the Western Maryland, Wabash-Pittsburg Terminal, West Side (Pittsburg) Belt, and the Wheeling & Lake Erie all became involved. These five roads represent more than one-fourth of the total mileage placed in receivers' hands during the year. The Erie was saved from a similar fate only by the intervention of E. H. Harriman, who advanced the money to meet its interest charges. In 1907 only seven roads went into receivers' hands, and their combined mileage was only 317 with a total capitalization of \$13,585,000.

Many railway systems were saved from bankruptcy only by the practice of strict economy in operation and maintenance. By discontinuing all betterment work under way or contemplated and by cutting down the train service to a minimum, expenses were for the most part kept well within income. Some roads even showed slight gains in net earnings for part of the year, due to this policy. Costs of labor and supplies, however, continued at top levels during the period of depression, and this led to a more or less general agitation on the part of the railways for an increase in freight rates commensurate with the increased cost of conducting transportation. No important increases were put into effect, but at the end of the year an effort was still being made to bring this change about. Some of the more prosperous roads, which have long been

on a liberal dividend-paying basis, reduced their rate as a measure of economy. Pennsylvania, New York Central, Atchison, Topeka & Santa Fe, Boston & Maine, Norfolk & Western, and Louisville & Nashville all reduced the rate 1 or 2 per cent.

RAILWAY FINANCING. In the spring of 1908, the money market began to assume a favorable investment tone for the first time in more than a year. The Pennsylvania Railroad put out an issue of \$40,000,000 of 4 per cent consolidated mortgage bonds, which were heavily oversubscribed. In June the Union Pacific issued \$50,000,000 of 4 per cent bonds and these were followed by other large issues by companies which still retained good credit. Other roads which were in need of funds resorted to smaller issues of short-term notes bearing higher rates of interest. The new issues of railway securities of all kinds put out during 1908 aggregated close to \$1,000,000,000. In 1907 a total of \$1,800,000,000 in new securities was authorized and in 1906 \$2,700,000,000.

FEDERAL AND STATE LEGISLATION. During 1907 the movement for government regulation of railroads became widespread and a large number of restrictive laws were passed by national and State legislatures. Partly owing to the fact that only 13 State legislative bodies were in session and partly owing to some abatement in the popular outcry against the abuses charged up to the railroads, there was a marked decrease in number and severity of new regulation laws passed during 1908. Few of those enacted had any great importance and by reason of unfavorable court decisions in some States, many extreme measures put into effect the previous year were declared wholly or partly inoperative or unconstitutional. In fact, the court decisions handed down in 1908 nullifying many of the newly created statutes of 1907 may be said to have been far more important than any new legislation passed during the same period.

In order clearly to understand the effect of some of the recent court decisions relating to the activities of the Interstate Commerce Commission, which is the regulating body of the Federal government, it may be of interest briefly to summarize the history of the powers conferred on that body by Congress. The Interstate Commerce Act was passed originally in 1887 and was amended in 1889. It was found inadequate to prevent unjust discrimination against shippers and in 1903 the Elkins law was enacted, imposing fines of from \$1,000 to \$20,000 for violations of the provision against rebating. Further abuses manifesting themselves, which could not be prevented under this law, a new and more stringent act, known as the Hepburn law, was passed on June 29, 1906. This gave to the Interstate Commerce Commission power to prescribe rates, with provision for review of its decisions by the courts; broadened the definition of common carriers to include all railroads, pipe lines, express and sleeping car companies; forbade the issuance of free passes to any but employees and their families and a small list of other persons; forbade railroad companies to transport any commodities other than lumber produced or owned by the carrier; required schedules of all tariffs to be filed with the Commission; imposed more severe penalties for rebating; empowered the Commission to prescribe a uniform method of keeping accounts, and, finally, enlarged the Commission to seven mem-

bers. This act became a law on August 28, 1906.

During the session of Congress which adjourned in June, 1908, six laws affecting railroads were enacted. A law limiting the working hours of railroad employees, which went into effect March 4, 1908, was the only important legislation of the session of 1907. The six laws of 1908 included a strict employers' liability act, applicable to railroads engaged in interstate traffic, a law prohibiting use of ash pans on locomotives which require that a man shall go under the engine to open them, a law prohibiting the transportation of explosives in passenger trains or boats, an amendment to the Interstate Commerce act of 1907 revising the provision relating to issuance of free passes to enlarge the definition of employees, a bill giving the Interstate Commerce Commission authority over the street railways in the District of Columbia and a clause in the civil appropriation bill providing for an appropriation of \$50,000 for the expenses of the Block Signal and Train Control Board acting under the direction of the Interstate Commerce Commission to investigate and pass on all forms of railway safety appliances. Of these six bills, the employers' liability law was by far the most important. Up to the close of 1908, it had not been finally passed on by a court of last resort, although there was doubt in some quarters of its constitutionality.

STATE RAILROAD COMMISSIONS. No new State railroad commissions were created in 1908. In 1907 commissions were created in Alabama, Colorado, Montana, Nebraska, Nevada, New Jersey, Pennsylvania and two in New York. These brought the total number of States having commissions up to 40, an increase of 11 in three years.

STATE RAILWAY LEGISLATION. The laws affecting railroads which were passed by State governing bodies during 1908 were of only minor importance, compared with the wave of hostile legislation which swept over the entire country a year previously. In 1907 39 State legislatures were in session and they enacted over 300 new laws affecting railroads. Ten States alone passed 177 laws. The new legislation of that year covered every phase of railroad operation and was not confined to any one section of the country, as was the Granger agitation of 1870 to 1877, but spread from coast to coast. The most important laws passed were those limiting the working hours of railroad employees, modifying employer's liability for accidents as affecting railroad employees, reciprocal demurrage laws which imposed a penalty on the railroads for not furnishing cars to shippers on demand, and laws reducing freight and passenger rates. Twenty States passed laws during 1907 reducing passenger rates, and in 11 States freight rates were also subject to general reductions.

ACTIVITY OF INTERSTATE COMMERCE COMMISSION. During 1908 the Interstate Commerce Commission received 5,194 formal and informal complaints relating to all branches of its supervision over railroads. Prosecutions for violation of the provisions of the act to regulate commerce, principally for rebating and similar practices, were actively carried on. A total of 48 indictments for rebating were returned during the year and 41 prosecutions were concluded, of which 31 resulted in convictions and fines. There were transmitted to the United States district attorneys in various districts 276 cases

involving 1,117 distinct violations of the safety appliance law. The number of violations reported to the Commission was only about half the number reported in 1907. The Commission established regulations covering the filing and publication of tariffs of express companies similar to those required of railroads. It also promulgated a uniform system of accounts for express companies and electric railways coming under its jurisdiction. A uniform system of accounting, including an allowance for depreciation, was promulgated for steam roads in 1907, in accordance with one of the provisions of the Hepburn law of 1906. As a result of a long series of hearings, the Commission recommended the adoption of a new uniform bill of lading by all carriers in the United States, and substantially all of the important roads have adopted this new form, which is a great improvement over the bills formerly used.

COURT DECISIONS. The decisions of courts of last resort handed down during 1908 in matters relating to railroad affairs were of great importance. A few will be briefly referred to. The most important case involving rebates during 1907 was that carried on by the government against the Standard Oil Company. The Standard Oil Company of Indiana was charged on 1,462 counts, each covering the shipment of a single car, of accepting from the Chicago & Alton a rate of 6 cents per 100 pounds on oil between Whiting, Ind., and East St. Louis, Ill., whereas the published tariff was 18 cents per 100 pounds. Judge Landis, of the United States District Court at Chicago, before whom the case was tried, found the defendant guilty, on August 3, 1907, and imposed the maximum fine of \$20,000 for each count, or a total of \$29,240,000, after taking into account the fact that while the fine was many times the total capitalization of the immediate defendant, the Standard Oil Company of Indiana, it was not more than the capitalization of the parent corporation, the Standard Oil Company of New Jersey. The case was carried on appeal to the United States Court of Appeals, which handed down a decision in December, 1906, reversing the trial court on the following grounds: (1) That the fine was excessive and confiscatory, (2) that intent to violate the law was not proved, as it was not shown that the agents of the Standard knew the legal and published rate to be 18 cents; (3) that the separate offenses, if any, consisted in the number of settlements of freight bills made and not in the number of carloads shipped. The government gave notice of its intention to begin a new suit, having been denied the right to appeal to the United States Supreme Court and bring the original proceedings up for review.

Another important event of 1907 was the investigation of the Harriman lines by the Interstate Commerce Commission. Testimony was taken during January and February of that year, with the object of bringing to light the relations existing between the Union Pacific Railroad and the various corporations controlled by it through stock ownership. The investigation centred particularly about the part played by Edward H. Harriman, the dominating influence in the affairs of Union Pacific, in the reorganization of Chicago & Alton. During the course of this inquiry, in which it was shown that Union Pacific owned 18½ per cent. of the stock of Baltimore & Ohio, 8 per cent. of New York Central, 18½ per cent. of Atchison, Topeka & Santa

Fe, 30 per cent. of Illinois Central and smaller percentages of the stock of other roads, Mr. Harriman was questioned as to his holdings of Chicago & Alton stock at the time of the reorganization of that road and the price at which his personal holdings and those of his business associates were transferred to the Union Pacific. On advice of counsel, Mr. Harriman refused to testify on this point. Proceedings were begun to compel him to testify on this and other similar transactions, and the case was carried to the United States Supreme Court. Late in December, 1908, the court handed down a decision upholding Mr. Harriman in his refusal to answer the questions asked by the attorneys for the Interstate Commerce Commission on this point. The court held that "the purposes of the act for which the Commission may exact evidence embrace only complaints for violation of the act and investigations by the Commission upon matters that might have been made the subject of a complaint. The main purpose of the act was to regulate the interstate business of carriers and the secondary purpose was to enforce the regulations enacted. The power to require testimony is limited to the only cases where the sacrifice of privacy is necessary—those where the investigations concern a specific breach of the law." This decision was thought effectively to check the power of the Commission to begin general investigations of a similar character under the provisions of the Hepburn law of 1906.

On Sept. 10, 1908, the United States Circuit Court of Appeals for the Third Circuit, sitting in Philadelphia, decided that the so-called "commodities" clause of the Hepburn law was unconstitutional. This clause of the act prohibited railroads from mining and selling coal produced along their lines. The roads immediately affected by the decision were the Central Railroad of New Jersey, Lehigh Valley, Erie, Delaware, Lackawanna & Western, Delaware & Hudson, Pennsylvania and Philadelphia & Reading. This clause in the act was thought to be one of the most effective means for checking discrimination against independent shippers.

Previous to July 1, 1908, only one suit had been instituted to set aside orders of the Interstate Commerce Commission regarding adjustment of rates. Since that date 16 suits were begun. The questions presented in these suits were fundamental and aimed to test the constitutionality of the law itself. Up to the end of the year no decisions had been finally rendered in any of these actions.

The law regulating the working hours of railway employees became effective March 4, 1908. Eleven railroad companies began proceedings to restrain the Commission from enforcing the provisions of the law, but most carriers have accepted it. None of the proceedings had come to trial at the end of the year. Similar laws were passed in a number of States during 1906 and 1907. The courts of Missouri, Wisconsin and Arkansas declared the laws of those States unconstitutional.

Decisions affecting the rate reductions were numerous and far-reaching during the year. Test cases were begun by railroads in nearly all States in which lower rates were required by laws passed in 1907. The Supreme Court of Pennsylvania declared that the 2-cent-a-mile passenger fare law was unconstitutional. An injunction was issued by a Federal court in South

Dakota in January, 1908, restraining the State Railroad Commission from reducing passenger rates to 2½ cents per mile. The United States Supreme Court, in March, 1908, declared the rate laws enacted by Minnesota and North Carolina in 1907 to be unconstitutional, on the ground that they were confiscatory and because of the enormous penalties attached for violations. The Missouri law prohibiting corporations from transferring suits on appeal from the State courts to the Federal courts was declared unconstitutional by the United States District Court. These decisions favorable to the railroads indicated to some extent the unreasonableness of much of the legislation enacted during the previous year, which in the cases noted was completely overthrown or held in abeyance pending final adjudication.

CONSTRUCTION OF NEW RAILROAD MILEAGE. In view of the general condition of the railroad industry in 1908 it was not surprising that the mileage of new railroad lines built should show a marked decrease over the figures for 1907. In 1907, according to figures compiled by the *Railroad Age Gazette*, 5,212 miles of new main track were laid, while in 1908 only 3,214 miles were built, a decrease of 1,998 miles, or 38.3 per cent. In 1908, 5,623 miles were constructed. The mileage of steam railways reporting to the Interstate Commerce Commission as of June 30, 1908, was 226,121. The longest extensions completed during 1908 were those of the Chicago, Milwaukee & St. Paul, with 790 miles of new track in Montana, Idaho and Washington; the Southern Pacific, with 448 miles, and the Great Northern, with 274 miles. In the east, the Virginian Railway built 131 miles in Virginia and West Virginia. The Grand Trunk Pacific laid 621 miles in Canada, and the Canadian Pacific 289 miles.

ELECTRIFICATION. There were a number of important developments during 1908 in the electrification of steam railroads. On July 1 the New York, New Haven & Hartford inaugurated complete electric service between Stamford and Grand Central Station, New York. No steam locomotives now enter this station with trains of either the New York Central or the New Haven. On Nov. 12 the Grand Trunk began electric operation of the Sarnia Tunnel under the St. Clair River. The system employed is substantially the same as that used on the New Haven, namely, 11,000-volt, single-phase alternating current collected from an overhead trolley wire. The Great Northern had built during the year the first of the three-phase alternating current locomotives which will be used in hauling trains through the Cascade Tunnel in the Sierra Nevada mountains. The Illinois Central announced late in the year that it was committed to a plan of electrifying all of its suburban lines around Chicago. Details of the equipment had not been decided upon at the end of the year. In December the Pennsylvania Railroad came to a definite decision to use direct current third-rail in its terminal electric zone in New York, including the river tunnels and the new station in New York City. See **ELECTRIC RAILWAYS**.

CAR AND LOCOMOTIVE BUILDING. The policy of the railroads of cutting down expenses to the lowest possible point during the year of business depression was sharply reflected in the dullness of the locomotive building industry. In 1907 the railroads were offered more business than they could handle with their equipment of

cars and locomotives, and large orders were placed for new rolling stock to meet the extraordinary demands. As a consequence, the output of the car building works and locomotive works in the United States reached a new high mark during that year. Including the output of a number of smaller builders in Canada, a total of 284,188 new freight cars and 5,457 passenger cars were purchased by the railroads of North America. Few orders for new equipment were placed after September, 1907, and not until late in 1908 did the manufacturing industry begin to show signs of recovery, following an improvement in traffic on the railroads. During 1908 the output was only 76,555 freight cars and 1,716 passenger cars, the smallest since 1904 and a decrease of 76 per cent. compared with the high record of the previous year. The accompanying table, compiled by the *Railroad Age Gazette*, gives the output of cars built in each of the years in the period 1903-1908:

Year	Freight	Passenger	Total
1903	153,195	2,007	155,202
1904	60,806	2,144	62,950
1905	165,455	2,551	168,006
1906	240,503	3,161	243,670
1907	284,188	5,457	289,645
1908	76,555	1,716	78,271

Locomotive building showed the same proportion of decrease in 1907 over 1908. (See LOCOMOTIVES.) The production of the 11 locomotive works in the United States and Canada for the years 1903-1908 is shown below:

1903.....	5,152	1906.....	6,952
1904.....	3,441	1907.....	7,362
1905.....	5,491	1908.....	2,342

BLOCK SIGNALS. One branch of railway construction did not show, on the face of the yearly returns, any effects of the setback following the panic of 1907. This was the installation of block signal apparatus. At the end of 1908, 60,709 miles of track were worked with the block system, as against 58,670 miles in 1907. More than 900 miles of track were protected with new automatic block signals installed.

RAILWAY ACCIDENTS. The accompanying table from *Accident Bulletin* No. 28, of the Interstate Commerce Commission shows the numbers killed and injured on American railways for the years ending June 30. It will be seen that the number of passengers killed in train accidents in the year 1907-8 was much less than half as much as it was in the previous year, and was only a little over half the average for the preceding three years 1905-7. The total of passengers and employees killed in train accidents equaled only 63 per cent. of the previous record, and the number of fatal coupling accidents, 239, was 20 per cent. less than in the year 1907. The report states that the large number of fatal accidents to employees, though greatly diminished, however, by the compulsory use of automatic couplers and the establishment of adequate regulations, is largely due either to breakage or failure of parts, or to disregard of rules and carelessness on the part of the employees. With the statistics showing the number of employees and passengers killed and injured should be considered the accidents to "other persons," which are not given in the bulletin, but are summed up in the annual statistical reports of the Interstate Commerce Commission. These include casualties at railroad crossings, to trespassers, to persons walking along the tracks, accidents to employees in shops remote from the railroad, and other accidents not occurring to passengers and to employees actually on duty. In the year ending June 30, 1907, under the heading "other persons," were recorded, 6,695 killed and injuries to 10,331, as compared with 6,330 and 10,241, respectively, in the previous year. The safety of passengers traveling on British railways is so often alluded to that some comparative statistics of interest. During the year 1908, according to the records of the Board of Trade, not a single passenger was killed in a train accident on a British line, but in 1907 the number of casualties was eighteen and in 1906, fifty-eight.

CASUALTIES TO PASSENGERS AND EMPLOYEES ON AMERICAN RAILWAYS, YEAR ENDING JUNE 30.

From Accident Bulletin No. 28 of the Interstate Commerce Commission.

	1908		1907		1906		1905	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Passengers:								
In train accidents.....	165	7,430	410	9,070	182	6,778	350	6,498
Other causes	241	5,215	237	4,527	236	4,407	187	3,542
Total	406	12,645	647	13,597	418	11,185	537	10,040
Employees:								
In train accidents	642	6,818	1,011	8,924	879	7,483	798	7,053
In coupling accidents.....	239	3,121	302	80.48	811	8,508	243	8,110
Overhead obstructions, etc.	110	1,353	134	1,591	132	1,497	92	1,185
Falling from cars, etc.....	668	11,317	790	12,565	713	11,253	633	9,237
Other causes	1,699	33,317	2,116	35,661	1,772	31,788	1,496	24,842
Total	3,358	56,344	4,353	62,689	3,807	55,524	3,261	45,426
Total passengers and employees	3,764	68,989	5,000	76,286	4,225	66,709	3,798	55,466

RAMÉE, LOUISE DE LA. An English novelist author (under the pseudonym, "Ouida," which represented her effort as a baby to pro-

nounce her own name) of *Under Two Flags*, *Strathmore*, *Puck*, *Moths*, and other once immensely popular novels, died at Viareggio, Italy.

on January 25, 1908. She was born in Bury St. Edmunds, of English-French parentage, in either 1839 or 1840, and was brought up in Paris and London. There is good evidence that her correct name was Ramée, and that she affixed the "de la" to suit a whim of her own. She lived for a time with her grandmother, in London, but soon after her success as a novelist she removed to Italy, where, in a handsome villa which she built at Lucca, she passed the remaining active years of her life, save for occasional and sometimes prolonged visits in London. She began to write when she was very young, became a contributor to *Colburn's Magazine*, and in 1863 published her first novel, *Held in Bondage*, which did not succeed, partly because, from its title, it was presumed to deal with the slavery question. But *Strathmore* (1865) quickly attracted attention, and her popularity was increased by *Chandos* (1866), *Under Two Flags* (1867) and *Puck* (1870). In 1904 the British Museum catalogue credited her with forty-one volumes. Her best known novels, in addition to those already mentioned, were *Tricotrin* (1869); *A Dog of Flanders* (1872); *Pascarel* (1873); *Two Little Wooden Shoes* (1874); *Ariadne, the Story of a Dream* (1877); *Friendship* (1878); *Moths* (1880); *The Village Commune* (1881); *In Maremma* (1882); *Bimbi Stories for Children* (1882); *Wanda* (1883); *Othmar* (1885); *Guilderoy* (1889); *The Silver Christ* (1894); *Two Offenders* (1894); *Le Selve* (1896); *The Massarenes* (1897); *Toxin* (1897); *La Streza* (1899); and *Street Dust* (1901).

Enormous as were Ouida's profits on her novels—for they had netted her a good-sized fortune—her extravagance and hopelessly unbusiness-like methods reduced her, in the last few years of her life, to a poverty, which, though probably exaggerated in the newspapers, was at least sufficient to get her name on the list of English civil pensions (in July, 1907), for \$750 a year.

RANC, ARTHUR. A French politician and writer, died on August 10, 1908. He was born at Poitiers, on December 20, 1831, and studied jurisprudence at Paris. In 1853 he was charged with taking part in the attempt made on the life of Napoleon III in the Opéra Comique, but was acquitted. He was subsequently put in prison, however, for his relations with the Carbonari. Upon his release he was again accused of conspiracy and exiled to the penal colony of Lambessa, Africa. Upon his return to France, in 1859, he took up journalistic work in connection with the anti-clerical papers, the *Opinion Nationale* and the *Nain Jaune*, and was imprisoned for four months for his writings. In 1870, after the fall of the empire, he was *maire* of the ninth arrondissement of Paris. He also served for a time as director of public safety, and in 1871 was elected to the National Assembly, which office he soon resigned. He was one of the first members of the Commune and used his influence to try to prevent the burning of the Tuileries. In 1873 he was again elected to the National Assembly, but was condemned to death for his connection with the Commune. He succeeded, however, in effecting his escape to Belgium. In 1879 he returned to France; two years later was elected deputy for the Seine, and in 1891 was chosen Senator. He remained in the Senate until 1900, when he failed of elec-

tion because of his activity in behalf of Dreyfus. In 1903 he became Senator from Corsica through the courtesy of Prime Minister Combes, who had been chosen Senator by two constituencies. Aside from his journalistic work, M. Ranc wrote *Le bilan de l'année* 1868 (1869); in collaboration with Castagnary, Paschal and others; *Le roman d'une conspiration* (1869); *Sous l'empire* (1872); *De Bordeaux à Versailles* (1877).

RANDALL, JAMES RYDER. An American journalist and poet, famous as the author of the words of the song, "Maryland, My Maryland," died at Augusta, Ga., on January 14, 1908. He was born in Baltimore, Md., on January 1, 1839, showed much literary precocity as a child, and at the age of ten years, entered Georgetown University. At that institution, six years later, his work in English won for him a medal which had remained unawarded for several years. His ill health forced him to leave college during his senior year. He was professor of English literature and the classics at Poydras College, in Louisiana, when the Civil War began, and it was here that he wrote his famous poem, "Maryland, My Maryland," the inspiration being a vivid newspaper account of the attack on the Massachusetts and Pennsylvania troops in Baltimore on April 19, 1861. The poem was published at once in the New Orleans *Delta*, and a few days later Miss Hetty Cary sang it in Baltimore to the old melody, "Lauriger Horatius." Mr. Randall enlisted in a Louisiana regiment, but was soon discharged because of his physical unfitness for service. He became a member of the staff of the Augusta (Ga.) *Constitutionalist* (afterward the *Chronicle*) in 1865 and a year later was made its editor-in-chief. In 1905-07 he was editor of the *Morning Star*, a Roman Catholic paper, of New Orleans. His poems have not been made into a book, but some of the better known of them are "The Lone Sentry," "There's Life in the Old Land Yet," "The Battle Cry of the South," and "The Cameo Bracelet."

RANDOLPH-MACON SYSTEM OF COLLEGES AND ACADEMIES. A system of educational institutions. Randolph-Macon College was founded at Boyton, Va., in 1830 and in 1860 removed to Ashland, Va. In 1890 its charter was amended to permit it to establish and maintain academies or other institutions of learning. Under this authority, academies for boys were opened in 1890 and 1892 and in 1903 the Randolph-Macon Woman's College was established in Lynchburg, Va., the citizens of that State having contributed \$220,000 for that purpose. This amount, now increased to \$530,000, constitutes the present plant of the Randolph-Macon Woman's College. It is on the "accepted" list of the Carnegie foundation and had in 1908 400 students. The Randolph-Macon Institute for Girls was added to the system in 1897. The system had in 1908 about 100 officers and teachers and over 1,100 students. The Chancellor of the system is Dr. William Vaughn Smith.

RECEIVERSHIPS. See RAILWAYS.

RED CROSS, THE AMERICAN NATIONAL. The American Association of the Red Cross was formed in 1882 as a voluntary reserve emergency organization, to relieve distress in time of war or calamity. This was practically a private

society, under the leadership of Miss Clara Barton, and continued as such until reorganized in 1904 and reincorporated by an act of Congress January 5, 1905. It was then transformed into an organization of national scope on an equality with European Red Cross Associations. The Association has affiliations with the government which assures harmony and cooperation between the two. The President of the United States is an honorary member and William H. Taft was, in 1908, its active president. The chairman and five members of the Central Committee are appointed by the President of the United States and represent the Federal departments of State, Treasury, Army, Navy and Justice. There is also a Board of Consultation, consisting of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Public Health and Marine Hospital Service. Other government officials and ex-officials are also officers of the Red Cross. In the United States there are more than thirty State branches and there are branches also in Porto Rico, Philippines and Hawaii. Since its reincorporation in 1905, the Red Cross has rendered assistance to sufferers from the Philippine typhoon, the Japanese famine, the Vesuvius eruption, the San Francisco earthquake and fire, the Chilean earthquake, the Italian earthquake, the Gulf storm, the Chinese famine, the Russian famine, the Mississippi cyclone and Southern floods, the Monongah mine disaster, Chelsea fire, Michigan forest fires and Canadian forest fires. The officers in 1908 were as follows: President, William H. Taft; treasurer, Beekman Winthrop; counselor, Henry M. Hoyt; secretary, Charles M. McGee; chairman of the Central Committee, Major-General George W. Davis, U. S. A., retired.

REFORMED CHURCH IN AMERICA, (DUTCH). A religious denomination in the United States composed originally of settlers from Holland, but largely intermixed with elements from many other sources. It was known, up to 1867, as the Reformed Protestant Dutch Church in North America. The first church organization was established in 1628. The number of communicants in the church in 1908 was 117,139. There were 683 churches and 727 ministers. In the Sunday schools were enrolled 117,623 scholars. The church is active in foreign missions, sustaining in 1908 108 missionaries. Of these, 26 were in China, 32 in India, 29 in Japan, and 21 in Arabia. During the year 1907-8 405 were added to the 47 mission churches, making the total number of communicants 5,837. The sum of \$132,839 was contributed for domestic missions. Eleven new churches were organized and 6 new missions were begun. The Church Building Fund received contributions amounting to \$8,904. Other funds of the church are the Disabled Ministers' Fund and the Widows' Fund. The denomination supports three theological seminaries, the New Brunswick Seminary, of New Brunswick, N. J.; the Western, of Holland, at Holland, Michigan, and the Arcot Theological Seminary, at Palmener, India. Two colleges, Rutgers College, at New Brunswick, N. J., and Hope College, at Holland, Mich., are under the auspices of the church. The official organs are the *Christian Intelligencer*, published in New York City, and *The Leader*, published at Holland, Mich. There are besides many missionary and departmental publications. The church has a Board of Education, which fur-

nishes aid to educational institutions and young men studying for the ministry. It has also a Board of Publication. The 102nd session of the General Synod of the church was convened at Asbury Park, N. J., on June 3, 1908. The headquarters of the denomination are at 25 East 22nd Street, New York City.

REFORMED CHURCH IN THE UNITED STATES, (GERMAN). A religious denomination, founded by immigrants from the Palatinate, and other districts of Germany. The first church was founded at Germantown, Pa., in 1714. Previous to 1793 the church was under the supervision of the Church in Holland. At that date it became independent. Under the General Synod, established in 1863, there were in 1908, eight distinct synods and fifty-nine classes, corresponding to the Presbyteries in Presbyterian bodies. There were 289,328 communicants, 1,753 congregations and 1,208 ministers and licentiates. In the Sunday schools were 221,784 scholars and 26,090 officers and teachers. During the year there were contributed \$403,924 for benevolent purposes; \$1,771,595 for congregational purposes. Foreign missions are carried on in Japan and China, and home missions are conducted through the Bohemian, Hungarian, German-English, English and Harbor departments. For this work \$240,000 was contributed during the year. The Eastern Theological Seminary was founded in 1825 and is at present located at Lancaster, Pa., under the supervision of the Eastern Pittsburg and Potomac synods of the church. The Western Theological Seminary, founded in 1850, at Tiffin, Ohio, has been removed to Dayton, Ohio, and is under the supervision of the Ohio Synod. It is now known as the Central Theological Seminary of the Reformed Church in the United States. The Mission House for training German ministers is in Sheboygan, Wis. Franklin and Marshall College and Academy, at Lancaster, Pa., is the leading collegiate institution under the auspices of the church. Other colleges are: Heidelberg College, at Tiffin, Ohio, and Ursinus College, at Collegeville, Pa. Colleges for women are maintained at Frederick, Ind., and Allentown, Pa. The Eastern Synod held its 102nd session October 14-19, 1908, at Lock Haven, Pa. Its next annual session will be held October 20, 1909, in the First Reformed Church, at Easton, Pa.

REFORMED CHURCHES, ALLIANCE OF, THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM. An organization which includes Presbyterian and Reformed churches throughout the world, formed in London, England, in 1875. The churches connected with the Alliance number more than 90 and are situated on all five continents. The total number of adherents of the churches throughout the world is about 25,000,000. In the United States the Alliance includes the following churches: Presbyterian Church in the United States of America, 1,300,329; Presbyterian Church in the United States, 268,733; the United Presbyterian Church of North America, 153,956; Reformed Church (Dutch) in America, 117,139; the Christian, Reformed Church in North America, 25,175; Reformed (German) Church in the United States, 248,271; the Reformed Presbyterian Church, Synod, 9,404; the Associate Reformed Synod of the South, 13,368; Reformed Presbyterian Church, General Synod.

3,500; the Welsh Calvinistic Methodist and Presbyterian Church in the United States of America, 14,000; other churches, 1,000; total membership in the United States, 2,154,875. The president of the Alliance is Rev. J. Oswald Dykes, D.D., Principal of the Theological Seminary at Cambridge, England. The American secretary is W. H. Roberts, D.D., LL. D. The first Council of the Alliance was held in Edinburgh, Scotland, in 1877, and the ninth Council will meet in New York City in 1909.

REFORMED EPISCOPAL CHURCH. An Episcopal Church of historic orders, organized in New York December 2, 1873, by members of the Protestant Episcopal Church who were opposed to the growth of sacramentarianism and sacerdotalism in that church, and who made the separation in order that they might continue to worship after the old historic order of the English Reformation and in order to provide a place for any others who might desire to have membership in a church, evangelical in its teaching, liturgical in its worship, episcopal in its government, and dignified and conservative in its methods. The church in 1908 included about 10,000 communicants, 74 churches, and 82 ministers. There were eight bishops in the church, seven of whom presided over synods and missionary jurisdiction in the United States and Canada, and one in British Columbia. The church also has a large following in England. The 28th annual council of the New York and Philadelphia Synod was held in Christ Memorial Church, Philadelphia, October 21 and 22, under the presidency of Bishop William T. Sabine, D.D., of New York. At the same date the annual Council of the Synod of Chicago was held at the Church of the Epiphany, Cleveland, Ohio, under the presidency of the Rt. Rev. Charles Edward Cheney, D.D., S.T.D., Bishop of that Synod. During the year several annual young people's conferences were held. Rev. Professor Robert Livingston Rudolph, A.M., D.D., of New York, Professor of Systematic Theology and Christian Ethics at the Reformed Episcopal Theological Seminary at Philadelphia; was elected to be Bishop Coadjutor of the New York and Philadelphia Synod to assist Bishop William T. Sabine, in place of Assistant Bishop H. S. Hoffman, D.D., of Philadelphia, who resigned his office on account of ill health. The 19th annual Council will be held at St. Paul's Church, Philadelphia, the third Wednesday in May, 1909. The church conducts large missionary work, including between thirty and forty churches among the colored freedmen of the South. Foreign missions are carried on in India. The Theological Seminary of the Church is at Philadelphia. The official organs of the church are *The Episcopal Recorder*, published in Philadelphia, and the *Evangelical Episcopalian*, published in Chicago.

REFORMED PRESBYTERIANS. Several religious bodies of Presbyterian doctrine, founded by members of the Covenanting or Reformed Presbyterian Church of Scotland. They include the Reformed Presbyterian Church in the United States (Synod), with about 9,000 communicants, 109 churches and 113 ministers; the Reformed Church in North America (General Synod) with about 3,500 communicants, 19 churches, and 19 ministers; the Reformed Presbyterian Church (Covenanted) with 4 communicants, one church and one minister, and the Reformed Presby-

terian Church in the United States and Canada, with 436 communicants and one church. The General Synod has a theological seminary at Philadelphia, and the Covenanted body has a seminary at Allegheny City, Pa. The General Synod held its annual meeting at Cincinnati, Ohio, on the fourth Wednesday of May, 1908, and the next session will be held at Philadelphia in the Fifth Reformed Presbyterian Church on the third Wednesday of May, 1909.

REID, Sir ROBERT GILLESPIE. A Newfoundland railway contractor, died on June 3, 1908. He was born at Coupar-Angus, Scotland, in 1840, and in 1865 went to Australia, where he became engaged in gold mining and also did some contracting for public works. In 1871 he went to Newfoundland. He first devoted himself to bridge contracting, his most notable achievements in this line being the International Bridge over the Niagara River, near Buffalo, the railway bridges on the old Montreal, Quebec & Ottawa Railroad, now belonging to the Canadian Pacific system, the Lachine bridge, across the St. Lawrence River, the bridge over the Colorado River at Austin, Tex., several railway bridges on the Southern Pacific Railroad, and the Delaware Water Gap Bridge in Pennsylvania. His first venture in railway building was in 1890, when the government of Newfoundland gave him the contract to build the Hall's Bay Railway. This was completed in 1893, and he then built the Western Railway, running from Hall's Bay to Port-au-Basque, which, after its completion, he also operated. He, subsequently, through agreement with the government, assumed control of the entire Newfoundland railway system, which control, however, he was obliged to relinquish in 1901, because of the opposition the plan had aroused among the electorate, and his holdings were transferred to the Reid Newfoundland Company, of which he was first president. Mr. Reid was knighted in 1907 in recognition of his services to Newfoundland.

RELATIVITY THEORY. See PHYSICS.

RESERVOIRS. See WATER SUPPLY; DAMS; IRRIGATION.

RÉUNION. An island in the Indian Ocean, 400 miles east of Madagascar, a colony of France. Area, 764 square miles; population (1902), 173,315 (13,492 British East Indians, 4,496 Malagasy, 9,457 Africans, 1378 Chinese). The chief towns, with their populations in 1902, are: St. Denis, the capital, 27,392; St. Pierre, 28,885; St. Paul, 19,617; St. Louis, 12,541. The deaths exceed the births. The chief products are sugar (40,000 tons in 1908-9), which makes up 60 per cent. of the exports, rum, tapioca, coffee, vanilla and spices. The imports and exports in 1907 were valued at 14,490,988 and 13,976,891 francs, respectively, the trade with France being represented by 7,746,000 francs of imports and 13,305,000 francs of exports. A railway of 83 miles connects Pointe-des-Galets, the chief port, with St. Benoit and St. Pierre. The island is under a governor, assisted by a privy council and an elective General Council. It is represented in the French Parliament by a Senator and two deputies. The budget for 1907 balanced at 6,522,000 francs. The debt in that year stood at 8,991,000 francs. The French subvention in 1908 amounted to 2,388,480 francs, of which 2,025,000 francs was for the railway and harbor.

REUTERDAHL, HENRY. An American marine painter. He published in *McClure's Magazine* at the time the Atlantic Squadron started on its cruise around the world, a criticism on the construction of the American battleships and navy organization, which attracted wide attention and eventually led to detailed statements from the authorities of the Navy Department. He was born at Malmö, Sweden, on August 12, 1870, and was educated at Stockholm. He developed talent as an artist and came to the United States in 1893 as artist correspondent for a Swedish paper. Since then he has been connected with various illustrated papers in Chicago and New York, and was naval artist and correspondent during the Spanish-American war. He has written extensively on naval subjects.

RHODE ISLAND. One of the North Atlantic States of the United States. Its area is 1,248 square miles. The population, according to Federal estimate made in 1908, was 510,997.

MINERAL RESOURCES. The mineral production of the State is very limited. There was produced in 1907 granite to the value of \$674,898, as against a value for the production in 1906 of \$623,400. There were produced 245,307 gallons of mineral water to the value of \$17,108, as against 220,770 gallons in 1906, valued at \$16,161. Among other mineral products produced in small quantities are coal products, graphite and talc. According to figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$937,384, as compared with a value in 1906 of \$1,715,609.

AGRICULTURAL AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 423,000 bushels, valued at \$385,000 from 10,000 acres; oats, 62,000 bushels, valued at \$40,000 from 2,000 acres; potatoes, 900,000 bushels, valued at \$774,000 from 6,000 acres; hay, 90,000 tons, valued at \$1,552,000 from 60,000 acres. The numbers of farm animals in the State on January 1, 1909, were as follows: Horses, 14,000; dairy cows, 26,000; other cattle, 10,000; sheep, 9,000; swine, 13,000.

MANUFACTURES. A comparison of the census of 1905 with that of 1900, on the basis of establishments classed as factories, shows an increase in capital from \$176,901,600 to \$215,901,300, of wage-earners from 88,197 to 97,318, and of value of products from \$165,550,382 to \$202,109,583. Of the wage-earners in 1905, 30,742 were women and 5,230 were children under 16. Textile industries were credited with a value of products of \$103,096,300 in 1905, or 32.8 per cent. more than in 1900. The values of products of the various branches were: Worsteds, \$44,477,600; cotton goods, \$30,628,800; dyeing and finishing, \$9,981,400; woolen goods, \$8,163,167; cotton small wares, \$3,944,600; hosiery and knit goods, \$3,344,600; and silk and silk goods, \$2,555,900. Every branch showed a considerable increase over 1900 values, the percentages of increase for the first four noted being, respectively, 36, 25, 17.8, and 56.5. The values for other leading industries and (in parentheses) the percentages of increase over 1900 were: Foundry and machine shop prod-

ucts, \$16,338,500 (23); jewelry, \$14,431,700 (9); electrical apparatus and supplies, \$5,435,400 (6); silversmithing and silverware, \$5,323,000 (25); gold and silver refining, \$4,260,700 (22). Rhode Island ranked first in the manufacture of jewelry in both 1900 and 1905. Until 1901 Rhode Island ranked second in the number of active cotton spindles; in that year it was surpassed by South Carolina, and in 1906 it was similarly surpassed by North Carolina, giving it fourth rank in this industry. The number of spindles in 1908 was 2,388,105. The following values were credited to leading centres: Providence, \$91,980,900; Pawtucket, \$25,846,800; Woonsocket, \$19,260,500, and Warwick, \$7,051,900.

EDUCATION. By a law of 1903, amended in 1904, the district system was replaced by the town system of school administration. It was also provided that two or more towns could unite to employ a superintendent. The State aids supervision by paying \$750 to a town, city or union that pays its superintendent \$1,500 or more. Such supervision applies to schools having 90 per cent. of pupils enrolled. Since 1898 the State has had an exclusive State system of certifying or licensing teachers. In 1903 a law was enacted requiring superintendents to hold certificates of qualification, granted by the State Department of Education. Towns are required to raise for schools by taxation an amount equal to that given by the State. To encourage consolidation and grading of rural schools, special State aid is granted. In 1906 there remained fewer than 200 ungraded schools. As a result of the law granting State aid to towns maintaining approved high schools, or paying the high school tuition of their pupils at some approved high school, about 97 per cent. of the children of the State have the opportunity of free high school education. There has also been much recent progress in the establishment of evening schools, these being easily accessible in 1906 to about 80 per cent. of the population. In 1907 Rhode Island provided for the pensioning of teachers who have taught thirty-five years, the amount of the pension to be one-half of the annual salary of the last five years, but cannot exceed \$500. On July 1, 1908, twenty-one teachers retired, and on September 30 drew their first quarterly pensions, amounting to \$1,792.20. As far as is known, this is the first time in America that a State has paid a teacher's pension under a well ordered system. The State has long pursued a liberal policy in the education of defective classes. In 1907 it established a new school for the feeble-minded. In addition to school education supplied in other States for the blind, it provides instruction for the adult blind at their homes.

CHARITIES AND CORRECTIONS. The Rhode Island State institutions are located at Howard in the town of Cranston. The State Hospital for the Insane is the largest of this group. The daily average in 1908 was 551 men, 473 women; total, 1,024. The cost for maintaining this Institution for 1908 was \$134,528.75. This amount does not include construction. The Sockanosset School for Boys had a daily average of 386 in 1908, and cost for maintenance was \$68,249.84. The Oaklawn School for Girls had a daily average of 42 in 1908, and cost for maintenance was \$6,459.71. The State Prison

had an average of 125 men, 1 woman; total 126. Providence County Jail, located in the wing of the Prison Building, had an average of 380 men, 23 women; total 403. The cost of maintenance of Prison and Jail together was \$79,929.22. The Workhouse and House of Correction had a daily average of 202 men, 58 women; total 260. The State Almshouse had an average of 237 men, 39 boys; 213 women, 26 girls, making a total of 515. The cost for maintaining the Workhouse and Almshouse together was \$82,218.91. Daily average in all the institutions for 1908 was 2,756; total cost, \$371,386.43.

Each of the above named institutions are independent, with separate heads, all are under the control of the Board of State Charities and Corrections.

POLITICS AND GOVERNMENT. The legislative session of 1908 was the longest in the history of the State. It lasted seventy-seven days, the Assembly adjourning on May 26. Among the important measures passed were those restricting banks and trust companies, regulating motor vehicles and limiting the number of retail liquor licenses in cities and towns to one for each 500 inhabitants. On January 21, the Legislature elected G. P. Wetmore United States Senator. Mr. Wetmore's former term expired in 1906, and for a year the State had but one Senator.

CONVENTIONS AND ELECTIONS. The Republican State Convention to select delegates to the National Convention met on March 26. The platform indorsed the Roosevelt administration, the Panama Canal and protection. The convention declined, by a large vote, to instruct the delegates for any candidate. The Democratic State Convention to choose national delegates refused to indorse a candidate for the Presidency. The Democratic State Convention, for the nomination of a State ticket and Congressman, met on October 6. A platform indorsing the national platform and Bryan and Kern was adopted. Olney Arnold, of Providence, was nominated for Governor, Governor James H. Higgins having refused a renomination. The Republican State Convention on October 14 nominated State and Congress candidates. Aram J. Pothier was nominated for Governor. In the election of November 3 the Republicans carried the State by about 19,000 plurality, electing the entire State ticket. The detailed vote for national and State tickets, was as follows: Taft, 43,942; Bryan, 24,706; Debs, 1365; Chafin, 1,016; Hisgen, 1,105; Gilhaus, 183. Pothier, 38,676; Arnold, 31,406.

STATE OFFICERS. Governor, Aram J. Pothier, Rep.; Lieutenant-Governor, Arthur W. Dennis, Rep.; Secretary of State, Charles P. Bennett; Attorney-General, William B. Greenough; Treasurer, Walter A. Read; Adjutant-General, Frederick M. Sacket; Auditor, Charles C. Gray; Commissioner of Public Schools, Walter E. Ranger; Commissioner of Insurance, Charles C. Gray—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, vacancy in office; Associate Justices, Clark H. Johnson, C. Frank Parkhurst, John T. Blodgett, Edward C. Dubois. Clerk of the Court, B. S. Blaisdell—all Republicans.

The State Legislature of 1908 was composed of thirty-one Republicans and six Democrats in the Senate, sixty-four Republicans and six Democrats in the House. The State representation

in Congress will be found in the article UNITED STATES under the section *Congress*.

RHODESIA. A British possession in South Africa, administered by the British South Africa Company. It is divided by the Zambesi River into northern and southern Rhodesia.

NORTHERN RHODESIA is divided into north-eastern Rhodesia and northwestern Rhodesia. The former has an area of 106,000 square miles and 346,000 inhabitants. The seat of the administrator—in 1908, L. A. Wallace—is Fort Jameson. Northwestern Rhodesia, or Barotse-land, has an area of 182,000 square miles and 500,000 inhabitants. The seat of the administrator—in 1908, R. Codrington—is Livingston, on the Zambesi. There is an abundance of timber, indigenous rubber, cattle, agricultural produce, and minerals, particularly zinc and copper. The imports of northwestern Rhodesia in 1906 amounted to £187,565, and the exports, £105,610 (zinc ore, £80,773). The natives are under the immediate rule of their chiefs.

SOUTHERN RHODESIA has an area of 143,830 square miles and a population of 677,700 (662,800 native, 14,007 whites, and the rest colonial natives and Asiatics) at the end of 1907. Salisbury is the capital of the colony and chief town of the province of Mashonaland. Bulawayo is the chief town of the province of Matabeleland. Owing to its altitude the country is fitted for European settlement. European cereals, vegetables and fruit trees thrive on the highlands; tobacco, rubber and cotton in the lowlands. The output of minerals for the year ended March 31, 1908, was as follows: Gold, 624,813 ounces, valued at £2,336,103; silver, 165,479 ounces, valued at £18,560; lead, 782 short tons, £12,250; copper, 71 short tons, £5,356; chrome iron, 9,938 tons, £28,289; tungsten ores, 51 tons, £5,559; coal, 721,730 tons, £54,897; antimony, 14 tons, £275. Southern Rhodesia is included in the South African Customs Union (see British South Africa). In 1906 the imports amounted to £1,340,687; the exports, £2,110,602, nearly all minerals. There are 1,937 miles of railway, forming a part of the planned Cape to Cairo railway, and 4,300 miles of telegraph line. The revenue in 1907 was £544,937; the expenditures, £501,473. The administrator in 1908 was Sir W. H. Milton.

Toward the end of June the Council passed an Asiatic Registration bill aiming at British Indians and nearly identical with the Transvaal (q. v.) act. Much the same difficulty had arisen as in the Transvaal and the passage of the act was followed by similar consequences. The Indians protested and asked the protection of the British government.

RICE. The culture of this crop was carried on in 1908 in nine States. The area devoted to the crop was 655,000 acres and the total production was 21,889,620 bushels of rough rice. The average yield per acre was 33.4 bushels, the average price per bushel on December 1, 81.2 cents, and the total value of the crop on this basis \$17,771,281. In total yield and total value of crop 1908 ranked first, the yield being by more than 3,000,000 bushels greater than the year before and the total value by more than \$1,500,000 greater than in 1907. Louisiana produced in 1908 11,500,000 bushels, and Texas 9,142,500 bushels, making 20,692,500 bushels for these two States. This was about

95 per cent. of our total production. South Carolina had a crop of 480,000 bushels and Arkansas of 467,400 bushels. The world's rice crop in 1906 amounted to 106,943,900,000 pounds, of which Asia furnished practically 105,000,000,000 pounds. British India grows annually from 6 to 70 billion pounds, China from 50 to 60 billion pounds, Japan about 15 billion pounds, and Korea about 3 billion pounds. The Italian crop for 1908 was estimated at 25,000,000 bushels, which was a little under the average. The Texas-Louisiana Rice Farmers' Association was organized for marketing the product and controlling the price. It was decided to hold Japan rice until February 4, 1909, at \$3.25 a barrel.

RICHARD, FRANÇOIS MARIE, BENJAMIN, CARDINAL. A French cardinal, and archbishop of Paris, died in that city on Jan. 28, 1908. He was born in Nantes, on Mar. 1, 1819, of the noble Vendéen family, the Richards de Lavergne, and passed his youth in the château of Lavergne, near Nantes. He was educated at the Seminary of Saint Sulpice, was ordained in 1844, was vicar-general of Nantes in 1850-70, was consecrated bishop of Belley in 1872, became coadjutor bishop of Paris in 1875, and archbishop of Paris in 1886. In May, 1889, he received his cardinal's hat from Pope Leo XIII. He opposed military service by seminarists, and the church separation movement, but he was one of the prelates who favored the establishment of a form of public worship associations which should represent a combination of the canonical system and the legal requirements. The purity and benignancy of his character, and his activity in parish work, greatly endeared him to the religious people of Paris, and when he was required, under the terms of the Church and State Separation law, to leave the archiepiscopal palace, in Dec., 1906, a crowd of several thousand persons gathered in front of that edifice, knelt in the street and chanted hymns, and altogether made a remarkable demonstration of their love for the aged prelate, and their veneration for his office. Theologically, Cardinal Richard was rigidly orthodox. He set his face sternly against the Modernist movement and its adherents, such as the Abbé Loisy, whom he forced to resign his professorship in the Sorbonne. His few publications, such as his *Meditations* and his *Lives of the Saints of Nantes*, are interesting chiefly for their finished and graceful style, and as reflections of their author's asceticism.

RIMSKY-KORSAKOFF, NICOLAS ANDREJEVITCH. A Russian composer, an important member of the post-Wagnerian school, died on June 20, 1908. He was born at Tikhvin, Novgorod, on March 18, 1844. In 1856 he settled in St. Petersburg, where his first opera, *Psokovitchauka*, was produced in 1873. The most important of many subsequent operas are: *A May Night* (1880); *Snow White* (1880); *Mrada* (1892); *Christmas Eve* (1894); and *Kites* (1905). His instrumental works include three symphonies, a symphonic poem, *Sadko*, a piano concerto, and numerous smaller pieces for orchestra and for piano. He also wrote an excellent theoretical treatise on harmony. His operas are little known outside of Russia, but his instrumental compositions are universally popular.

RINDFLEISCH, GEORG EDUARD VON. A German pathologist, died on December 5, 1908. He was born in Köthen, on December 15, 1836, and was educated at Heidelberg and Würzburg. In 1856 he became assistant to Virchow in Berlin, and in 1861, Heidenhain's assistant in histology, at Breslau. In 1874 he succeeded Virchow as professor of pathology at Würzburg, where a fine institution was built under his direction. Rindfleisch made a special study of the causes and treatment of pulmonary tuberculosis. He published *Lehrbuch der pathologischen Gewebelehre* (1866-69) and *Elemente der Pathologie* (1883). In 1895 at the Medical Research Congress at Lübeck, he presented a paper on the "principles of life."

RIVER AND HARBOR IMPROVEMENTS. The proposal to construct a deep waterway parallel to the Atlantic Coast, by connecting the sounds, bays and rivers along the shore with canals, and thus enable vessels to take an inside route from Boston to Florida, received some attention during the year 1908. In such a scheme the Cape Cod Canal, which was under active construction, and estimated to cost about \$10,000,000, and the Chesapeake & Delaware Bay Canal, would be important links. The route from Boston would be by way of the Cape Cod Canal, Long Island Sound, East River, New York Bay, Arthur Kills, Raritan River, across forty-four miles of New Jersey by canal to the Delaware River, the Delaware and Chesapeake Bay Canal, Chesapeake Bay to Norfolk, Va., and thence south by means of canals or the deepening of existing inlets and rivers. The improvements of the seventy miles of the St. Lawrence River below Montreal, nearing completion, at the end of 1908, included deepening the channel to 30 feet and widening it to 450 feet on tangents, and 500 to 750 feet on curves. Fifty-six miles were finished so that with the help of the tide for a short stretch, a depth of 30 feet was obtained from Montreal to Quebec. The remaining work was to consist in securing a greater width in Lake St. Peter and the tidal parts of the river, as well as the full depth of 30 feet at low tide. Up to the end of the year 48,037,670 cubic yards had been removed, 17,500,000 cubic yards still remaining to be dredged.

The improvement of the Detroit River to provide for the increase in traffic and size of vessels on the Great Lakes was only part of a larger project in which the United States government had been engaged for several years, looking toward the betterment of the harbors along the shores, and the channels connecting these bodies of water. Operations on the Amherstburg channel are still in progress, though part of that work had reached completion during the year. In 1892 a minimum width of 1,600 feet Lake Erie datum, was proposed, too, for feet. Lake Erie datum, was proposed, too, for this channel, but ten years later the depth was increased to 21 feet referred to the 571 feet Lake Erie datum. In 1907, however, it was decided to construct a more direct route, which should be known as the Livingston channel, to have a depth of 22 feet, referred to the 571 feet datum, and a width of 300 feet at the upper end, and 800 feet from Bar Point to deep water in Lake Erie. When completed in 1911, this is to be used for vessels bound down the lakes,

while the Amherstburg channel is to be used for those bound up.

The prevention of floods at Kansas City, Mo., was provided for by the Kaw Valley Drainage Board, which proposed to remove obstructions in the channel, retard the flood outflow, and build dikes along the banks, besides providing a channel 734 feet wide. The cost of the improvement was estimated at \$375,000. (See DREDGING.)

ROADS. See PAVEMENTS AND ROADS.

ROCHE, JAMES JEFFREY. An American journalist and poet, died on April 3, 1908. He was born in Montmellick, Ireland, on May 31, 1847, and was educated at St. Dunstan's College, on Prince Edward Island. In 1866 he came to Boston, and after a brief business career, joined the editorial staff of the *Boston Pilot*, of which he was editor-in-chief in 1890-1905. He was United States Consul at Genoa in 1904-07, when (April 29) he became consul at Berne, Switzerland. His publications include: *Songs and Satires* (1886); *Life of John Boyle O'Reilly* (1891); *The Story of the Filibusters* (1891); *Ballads of Blue Water* (1895); *Her Majesty the King* (1898); *The V-A-S-E and Other Bric-à-Brac* (1900); and *Bycays of War* (1904).

ROCKWELL, CHARLES HENRY. An American naval officer, died on July 1, 1908. He was born at Chatham, Mass., on April 29, 1840, and entered the navy as an acting volunteer master in 1862. He served throughout the Civil War in the East Gulf Squadron, and at its close was an acting volunteer lieutenant-commander. He also saw service on shore as aide to General Newton in the expedition against St. Mark's in 1865, and received the thanks of that officer for his services at the battles of Newport and Natural Bridge. In 1866 he was commissioned acting master in the navy and advanced through the regular grades until his retirement with the rank of rear admiral in 1902.

ROEHRIG, FREDERICK LOUIS OTTO. An American philologist and educator, died on July 14, 1908. He was born at Halle, Prussia, on June 19, 1819, and studied at the universities of Halle, Leipzig and Paris. He came to the United States in 1853, and was appointed assistant librarian of the Astor Library, New York. He was professor of Sanskrit and modern Oriental languages at Cornell University, 1869-85; became instructor in Sanskrit at the University of Southern California in 1886, and in 1895 was appointed lecturer on Semitic and Oriental philology at Leland Stanford, Jr., University.

ROMAN CATHOLIC CHURCH. The most important events in the history of the Roman Catholic Church in 1908 were the Centenary Celebration of the founding of the three great dioceses (now arch-dioceses) of New York, Philadelphia, and Boston; the celebration of the Pope's Jubilee, the fiftieth anniversary of his ordination; and the Eucharistic Congress which met in London in October. Another event of importance was the great missionary Congress held in Chicago. Several of these events will be found discussed below.

The total membership of the Roman Catholic Church in 1908 was estimated at 160,165,000. Of these there were in France 35,387,000; in Austria-Hungary 31,100,000; in Italy, 39,850,000; in Germany, 17,100,000; in Spain, 16,850,

000; in Russia, 9,600,000, and in the United Kingdom, 6,500,000.

UNITED STATES. The total number of Catholics in the United States was estimated at 13,877,426. The clergy numbered 15,655, of whom 4069 were religious and 11,496 were secular. The hierarchy of the church is composed of one cardinal, 13 archbishops, and 90 bishops. The cardinal presides over the arch-diocese of Baltimore. The other arch-dioceses are Boston, Chicago, Cincinnati, Dubuque, Milwaukee, New Orleans, New York, Oregon City, Philadelphia, St. Louis, St. Paul, San Francisco, and Santa Fe. The number of churches in 1908 was 12,513, of which 8408 were churches with resident priests and 4105 missions with churches. There were 84 seminaries, with 5609 students. Colleges for boys numbered 200 and the academies for girls 697. The number of parish schools was 4443, with 1,136,906 children in attendance. Under the auspices of the church are 272 orphan asylums, with a membership of 42,597. There are 1054 charitable institutions, in which were 1,310,300 persons in 1908.

Beginning April 25th and lasting one week was a great celebration in New York City on the occasion of the 100th anniversary of the ordination of the first Roman Catholic bishop of New York. Eminent prelates and dignitaries of the church were present from all parts of the world. Among these was Cardinal Logue, Primate of all Ireland. The celebration included impressive ceremonies in St. Patrick's Cathedral and other churches of the city and a great street parade on May 2, of 40,000 men and boys, including all the representative semi-military organizations and societies of the church. On July 7, Pope Pius issued a decree removing the United States from the jurisdiction of the propaganda. By the operation of this decree the United States is no longer regarded as one of the missionary countries of the Roman Catholic Church, and will be ruled ecclesiastically, according to the ordinary canon law. In November a great missionary congress was held in Chicago. On the occasion of the celebration of the Pope's Jubilee, Archbishop Farley of New York presented the Pope with \$60,000 as an offering from the Catholics of his arch-diocese.

GREAT BRITAIN. On Sept. 11 the Eucharistic Congress began its session in London. Imposing ceremonies were conducted in Westminster Cathedral, where the congress was received by the Pope's representative. A great procession was planned as a conclusion to the Congress. This was intended to be a demonstration of faith in the Real Presence of the Holy Eucharist. It was designed that the host should be carried in the procession attended by a guard of honor. On the announcement of this intention, protests were received by the government from various Protestant societies against the proposed procession as a violation of the law. The Catholic Emancipation Act of 1829, while it allows Roman Catholics to enter Parliament, provides that "if any Roman Catholic ecclesiastic, or any member of any of the Orders, Communities, or Societies hereinafter mentioned shall, after the commencement of this Act, exercise any of the rites or ceremonies of the Roman Catholic religion, or wear the habits of his Order, save within the usual places of worship of the Roman Catholic religion, or in private houses, such ecclesiastic or

other person shall, being thereof convicted by due course of law, forfeit for every such offence the sum of fifty pounds." A petition to the King was prepared by fifty-one united Protestant societies protesting against the carrying of the Host in the procession. On the morning of Sept. 10, the Archbishop of Westminster, who had the procession in charge, received a private communication to the effect that the Prime Minister desired its abandonment. The Archbishop replied immediately that he could not undertake at that late moment to alter published arrangements unless he was authorized to state that he did so at the request of the Prime Minister. He pointed out in a letter to the Prime Minister that processions of a similar character had taken place all over England for many years past without hindrance of any kind, and he claimed that no disturbance would result in the passing of the procession over the proposed route. Mr. Herbert Gladstone, Home Secretary, wrote to the Archbishop that the proposed ceremonial procession had aroused much feeling and, while he could not think that any reasonable person would or could object to such a procession, organized with due regard to the law and general convenience, he was informed that the procession was to be accompanied by and identified with a ceremonial, which was alleged to be inconsistent with the law. He expressed the hope that great care would be taken to secure conformity with the law of the land. After the exchange of several other communications between the Archbishop and Mr. Asquith, the Prime Minister, and Mr. Gladstone, the Archbishop decided to abandon the ceremonial of which the legality was questioned, provided that he was authorized to state publicly that he did so on the request of the Prime Minister. This Mr. Asquith permitted him to do. Those who took part in the procession marched in ordinary dress, without the insignia of office. The episode aroused a great deal of feeling among both Catholics and Protestants in England, and a very general demand was expressed for the modification of the Act of Parliament.

OTHER COUNTRIES. In France the objection in regard to the separation of Church and State did not take on any violent form. The measure does not seem to have worked with detriment to either Church or State, but rather to have been a benefit to both. For the action of the Pope in regard to Abbé Loisy and other incidents relating to the Church in France in 1908, see FRANCE, under *History*. In Austria-Hungary the question of higher education developed antagonism as the result of the attempt of the Clericals to bring the universities under their own administration, subjecting the liberty of teaching to church control. Riots ensued between the Clerical students and those opposed to Clerical domination of schools, headed by Dr. Wahrmund. There were other disorders in various parts of the country. See AUSTRIA-HUNGARY, *History*.

MODERNISM. There were few developments with regard to the question of Modernism during the year, except a rather general silence on the part of Catholic scholars concerning Biblical and other problems. A period of stagnation has been inaugurated, which will probably last until the end of the present Vatican administration. The chief agitation was

that mentioned above in France, relating to Abbé Loisy, and in this connection it may be mentioned that Abbé Loisy was appointed to the Chair of History and Religion in the University of France. The incidents in Austria mentioned above were also indirectly connected with the subject of Modernism. There was much less writing and discussion concerning the subject than in 1907.

RONTGEN RAYS. See PHYSICS; CANCER.

ROOSA, DANIEL BENNETT ST. JOHN. An American physician and ophthalmologist, died in New York City on March 8, 1908. He was born in Bethel, N. Y., on April 4, 1838, studied at Yale in 1856, and in 1857, under a private tutor (on account of poor health), and then entered the medical department of the University of New York, where he graduated in 1860. In April, 1861, he became assistant house surgeon in the New York Hospital, to which institution he returned after having served for three months in the Civil War as assistant surgeon to the Fifth New York Regiment. He studied in the ophthalmic clinics in Berlin and Vienna in 1863, and in the same year became surgeon to the Twelfth New York Regiment. He was professor of diseases of the eye and ear in the University of New York in 1863-82, and held a similar chair in the University of Vermont in 1875-80. In April, 1883, he founded the New York Post-Graduate Medical School, of which he was president, and also professor of diseases of the eye during the remainder of his life. He was also one of the founders of the Manhattan Eye and Ear Hospital; president of the Medical Society of the State of New York in 1879; of the International Otolological Congress in 1876, and vice-president of the International Congress of Ophthalmology at Edinburgh in 1894. In 1893-94 he was president of the New York Academy of Medicine. Dr. Roosa was active in promoting beneficial medical legislation. His publications include *The Old Hospital* (1886); *Treatise on the Ear* (1891); *Treatise on the Eye* (1894), and *Defective Eyesight* (1899).

ROOSEVELT, THEODORE. Twenty-sixth President of the United States. He was born in New York City on Oct. 27, 1858, graduated at Harvard in 1880, and two years later was elected to the New York Legislature, where he served two terms. He was on a ranch in Medora, N. D., from 1884 to 1886, and upon his return to the East in the latter year was an unsuccessful candidate, on the Republican ticket, for mayor of New York, against Abram S. Hewitt (who was elected) and Henry George. In 1889-95 he was a member of the United States Civil Service Commission, and in the spring of the latter year became president of the New York City Police Board. In 1897 he was appointed assistant secretary of the navy, but resigned that position in April, 1898, and with Leonard Wood organized the First United States Volunteer Cavalry, in which he served during the Spanish-American war as lieutenant-colonel, receiving promotion to the rank of colonel for gallantry in action at Las Guasimas. He was elected Governor of New York in Nov., 1898, and at the Republican National Convention, at Philadelphia, in June, 1900, was nominated for Vice-President, a candidacy which he accepted only with the greatest reluctance. Immediately after the assassination of President McKinley, on Sept. 14, 1901, he succeeded to the Presidency,



THE EUCHARISTIC CONGRESS IN LONDON

THE PAPAL LEGATE, WITH FOUR OTHER DISTINGUISHED CARDINALS AND ARCHBISHOP BOURNE

ARCHBISHOP BOURNE
Archbishop of Westminster

CARDINAL GIBBONS
Archbishop of Baltimore

CARDINAL VANNUTELLI
Papal Legate

CARDINAL LOQUE
Archbishop of Armagh

CARDINAL MERCIER
Archbishop of Malines

CARDINAL FERRARI
Archbishop of Milan

the youngest man who has ever held that office. At the Republican National Convention, in 1904, he received a unanimous nomination for President, and in the ensuing election defeated Alton B. Parker, the Democratic nominee, by a majority of 196 electoral votes. His plurality over Parker was 2,545,000, and his majority over all candidates more than 1,700,000.

So far as the United States is concerned, one of the most important complete achievements of President Roosevelt's administrations was the acquirement by this country of the right to build and own the Panama canal. On Dec. 16, 1901, a new treaty with Great Britain was ratified, which outlined the political policy to be observed in the control of the canal. The Spooner amendment, which provided for a commission of seven members, vested with authority to select a suitable route for the canal, was enacted on June 28, 1902. The Isthmian route was chosen, but Colombia failed to ratify a canal treaty with the United States. A revolution at once began in Panama (Nov., 1903), the United States recognized the independence of that republic, and in May, 1904, the Canal Commission obtained full control of the canal zone. (See PANAMA CANAL.) Another act of very great immediate importance in the domestic affairs of the country was the President's interference (Oct., 1902) in the anthracite coal-miners' strike in Pennsylvania, with the result that the miners returned to work, thereby averting what might have been a disastrous fuel famine; while a commission examined the claims of the mine owners and their employees.

A very impressive act of President Roosevelt was his sudden appearance, in the summer of 1905, as peacemaker between Russia and Japan. Plenipotentiaries of the two nations met at Portsmouth in August of that year, and brought to an end one of the most sanguinary wars of history. For his services on this occasion he was awarded the Nobel peace prize in 1906. Again in Jan., 1903, the President induced Great Britain, Germany and Italy, whose warships were then blockading the ports of Venezuela in an effort to collect certain claims of their citizens, to abandon forcible measures, and to submit their claims to the Hague tribunal. In the same month (Jan., 1903), the troublesome Alaskan boundary dispute was submitted to a joint tribunal of American and English jurists, largely through the President's influence. In Oct., 1904, Secretary Hay, at the President's instance, issued an invitation to the powers to a second peace congress at The Hague, and the Czar's subsequent action in calling the conference (after the peace of Portsmouth) was considered in pursuance of Mr. Roosevelt's initial action. Less definite in its political aspects, but of far reaching importance, was the action at the beginning of the Russo-Japanese war by which the United States sought to enlist European powers in the effort to maintain the "administrative entity" of China, while in 1907 President Roosevelt's administration won the further gratitude of China by voluntarily remitting to that country more than \$10,000,000, representing the undisbursed part of the indemnity fund for damages in the Boxer rebellion. Mention should also be made of the reference to the Hague tribunal, in Sept., 1902, of the Pious Fund case, concerning the distribu-

tion of certain Jesuit funds in the possession of Mexico; of the protocol of 1907, by which the Newfoundland fisheries dispute was referred to the same tribunal, and of the peace conference, between the five Central American republics, held at Washington, in Dec., 1907, at President Roosevelt's suggestion, with the result that a joint arbitral tribunal was formed which promises to lessen the frequency of revolutions and political disorders in that part of the world. Other important foreign relations with which President Roosevelt's administrations have been identified were the Japanese immigration problem on the Pacific coast, which had begun to assume serious phases in 1907; the sending of Secretary Taft to Cuba, in Sept., 1906, the occupation of that island by United States troops in the following month, and the establishment of military rule there under Charles E. Magoon, as provisional governor; the readjustment of trade relations with Germany in 1907-08, and the sending of American delegates to the Algeiras Convention in 1906; while in this connection may also be mentioned the application (from Nov., 1905) of the merit system to the diplomatic and consular service of the United States. The first Philippine Assembly was called to order in 1907 by Secretary Taft.

President Roosevelt's attitude toward corporations and monopolies, many of which he considered to be existing or acting in violation of law and in infringement of the rights of the general public, so that the few were favored at the expense of the masses, aroused widespread and in many quarters hostile comment, especially during 1907 and 1908. In his earnestness to advance civic righteousness and the cause of the people as he saw it, his utterances were believed by many to be lacking in calmness and judicial discrimination and to tend to unsettle conditions in legitimate business. Consequently by some he was held as adding to the general depression due to the universally prevailing financial situation. Under such circumstances it was but natural that Mr. Roosevelt should have as many warm friends as critics, and while it would be too much to say that these could be classified as radicals and conservatives or reactionaries, nevertheless there was evidence of such a tendency. The decision in the Northern Securities case, Mar. 14, 1904, in which the consolidation of competing roads was declared illegal and the enactment of the rate law, June 29, 1906, giving increased power to the Interstate Commerce Commission, had strengthened the position of the President in regard to railroads, which he considered essentially as public highways to be administered in the interest of the people. In a message of Mar. 11, 1908, the President asked Congress to confer upon the government power to supervise all of the operations of interstate commerce enterprises, and incidentally denounced stock-watering, overcapitalization, and gambling and improper speculation in stocks and commodities. From May 13 to May 15, 1908, the conference of governors and other public men, called by the President, to consider the question of conservation of natural resources, was in session at Washington, and was addressed by him on the subject of State and Federal rights (see UNITED STATES; AGRICULTURE). In August, the President appointed a Commission on Country Life, his aim being to improve the condition of farmers. In March,

1907, he appointed the important Inland Waterways Commission (see AGRICULTURE), and in his message of Dec. 8, 1908, to the Sixtieth Congress, he again emphasized the need of forest preservation and urged the passage of the bill creating the White Mountain and Appalachian forest reserves (see FORESTRY). On Dec. 1, 1908, he issued an order applying the civil service rules to all fourth-class postmasters east of the Mississippi and north of the Ohio rivers.

During the summer of 1908 it became known that Mr. Roosevelt had decided to go on a hunting expedition in Africa upon the expiration of his term. The party was to proceed to Mombasa, British East Africa. The natural history materials collected by the expedition were to be turned over to the U. S. National Museum, at Washington.

ROOT, ELIHU. An American statesman, Secretary of State. He was born at Clinton, N. Y., on Feb. 15, 1845, and graduated at Hamilton College in 1864, and at the New York University Law School in 1867. He soon acquired a large law practice. He was one of counsel for William M. Tweed, and was chief counsel for Judge Hilton in the Stewart will case and for Hamilton College in the Fayerweather will case. He was also called upon to act as counsel for various corporations, including the New York Street Railway Company and the Sugar Trust. His first public office was that of United States District Attorney for the Southern District of New York in 1883-85. He was also a member of the Alaskan Boundary Commission in 1903. On Aug. 1, 1899, he was appointed Secretary of War by President McKinley, and he held this position until Jan. 31, 1904, when he resigned, and resumed his law practice in New York City. On July 1, 1905, he became Secretary of State. Mr. Root has shown great ability and energy in his administration of both the War and the State Departments. The former department he reorganized almost completely immediately after the Spanish-American war. He drew up the Platt amendment, outlined the general policy of the United States toward Cuba, and formulated the instructions to the Philippine Commission. As Secretary of State he has negotiated about forty treaties, or conventions, many of them of very great importance. At his instance the American delegates to the Second Hague Conference presented a plan for the formation of an international court of justice to comprise jurists representing the various systems of jurisprudence and the various languages of the civilized world, and the convention for the limitation of force in the collection of contract debts, adopted by this conference, was also of his framing. Upon the failure of the conference to adopt a general arbitration treaty, he at once began to approach the nations which had accepted the principle of compulsory arbitration, with the result that treaties of that character have been adopted, as between the United States and France, England, Norway, Sweden, Holland, Denmark, Spain, Portugal, Switzerland, Italy, and Austria-Hungary; and in November, 1908, a treaty with Japan was concluded whereby both countries agree to submit their international disputes to the Hague tribunal. Secretary Root also concluded with China the first treaty ever negotiated with that country in which the question of extra-territorial rights is not mentioned. He also arranged the confer-

ence of Central American States at Washington in November-December, 1907, at which a court was organized, which was formally opened in June, 1908, and within a month had adjusted a dispute between Honduras and Guatemala and Salvador. While Secretary of State, Mr. Root visited Canada, Mexico, and the leading republics of South America, making speeches to bring those countries into closer relations with the United States. After the election of 1908, Mr. Root was proposed for United States Senator from New York to succeed Thomas C. Platt, whose term expired in March, 1909. The absence of other candidates practically assured Mr. Root's election.

ROSSE, Sir LAWRENCE PARSONS, Fourth Earl of. A British scientist, died on August 29, 1908. He was born on November 17, 1840. Studied under his father, the third Earl of Rosse (who had constructed at his seat, Birr Castle, Kings County, Ireland, the great Rosse reflecting telescope), and under Professor John Purser, of Belfast (who for a time was resident at the Birr Observatory), and then in Trinity College, Dublin. At Birr, Rosse made a remarkable drawing of the great nebula of Orion, considered by some authorities as "probably the most elaborate piece of astronomical portraiture ever completed." He also investigated the radiation of heat by the moon, a subject which was still occupying much of his thought at the time of his last illness. He had been chancellor of the University of Dublin since 1885, had been president of the Royal Dublin Society (1887-92) and president of the Royal Irish Academy (1895-1900).

ROWELL, GEORGE PRESBURY. An American publisher, died on August 28, 1908. He was born at Concord, Vt., on July 4, 1838, and attended Lancaster Academy at Lancaster, N. H. He founded the George P. Rowell & Co. advertising agency in Boston in 1865, and in 1869 established the *American Newspaper Directory* in New York City, which contained the first complete list of newspapers ever published. In 1888 he began the publication of *Printers' Ink*, a weekly periodical.

ROWING. The intercollegiate races were held on the Hudson River, near Poughkeepsie, on June 28. The colleges represented were Cornell, Columbia, Pennsylvania, Syracuse, and Wisconsin. Annapolis and Georgetown did not enter crews, although both took part in the 1907 regatta. The best showing was made by the Syracuse crews, which won both the 'varsity eight-oared and the four-oared races and finished second in the freshman eight-oared race. In the 'varsity eight oars (four miles) there was a bitter struggle between Syracuse and Columbia, the former winning by only half a length. Syracuse's time, 19m. 34 $\frac{1}{2}$ s., is the fastest that has been made since 1903. The time of the other crews was: Columbia, 19:35 $\frac{1}{2}$; Cornell, 19:39; Pennsylvania, 19:52 $\frac{1}{2}$; Wisconsin, 20:43 $\frac{1}{2}$. Syracuse also won the four oars (two miles) in the comparatively slow time of 10m. 52 $\frac{1}{2}$ s. Pennsylvania finished second, but was disqualified for fouling Columbia. Cornell failed to finish. The freshman eight oars was won by Cornell in 9m. 29 $\frac{1}{2}$ s. The remaining crews in order of their finish were: Syracuse, 9:38 $\frac{1}{2}$; Columbia, 9:43; Wisconsin, 9:55 $\frac{1}{2}$; Pennsylvania, 10:42.

In the forty-second annual Harvard-Yale race, held on the Thames, near New London, Conn., on

June 25, Harvard won both the 'varsity eight-oared and the freshman eight-oared races, and Yale won the four-oared race. Harvard's time in the 'varsity eight oar was 24m. 10s., or three minutes slower than Yale's time in the preceding year. Yale covered the course in 27m. 45s., which is the slowest time ever made for the event. This poor showing on the part of Yale was largely due to the collapse of Griswold, the stroke, some distance away from the finish line. Yale's time in the four oars was 10m. 33½s., and Harvard's 10:43½. In the freshman eight oars Harvard's time was 9m. 38s. and Yale's, 9:47½.

Other college races were held during the year as follows: Harvard defeated Annapolis and Cornell in races on the Severn and Charles; Pennsylvania defeated New York University on the Schuylkill; and Annapolis defeated Columbia on the Severn.

The thirty-sixth annual regatta of the National Association of Amateur Oarsmen was held at Springfield, Mass., on Aug. 14 and 15. The principal events and winners were: Senior international fours, Saint Mary's A. A., Halifax, N. S.; senior double sculls, Springfield Boat Club; championship single sculls, F. H. Greer, Boston A. A.; senior pair-oared and four-oared, Vesper Boat Club, Philadelphia; senior eight-oared shells, New York A. C.

The sixty-fifth annual Oxford-Cambridge boat race was won by Cambridge for the third year in succession, the winner's time being 19m. 19s. In the English Henley, Christ Church won the Grand Challenge Cup, and Magdalen College the Steward's Cup. A. G. McCulloch, Oxford, won the diamond sculls. See OLYMPIC GAMES.

RUBBER. The commercial interest in the production of crude rubber in 1908, as usual centred in Brazil, from whose port of Para is exported a large proportion of the raw material for use in the manufacturing industries of Europe and America. This is received from the forests in Brazil and Bolivia, and is then transhipped to Europe and America. The arrivals of rubber at Para from July 1 to Dec. 21, 1908, amounted to 14,355 tons, as against 14,240 tons for the last six months of 1907. In New York there were violent fluctuations in the price of Para rubber during the year, and quotations ranged from 84 and 85 cents for fine old up-river rubber on Jan. 1, 1908, to \$1.24 and \$1.25 on Dec. 30, touching even higher values earlier in the year. Brazil was said to have Para trees capable of yielding 36,000 tons of rubber per annum, and there are now planted about 500,000 acres, capable of yielding from 25,000 to 50,000 tons. The plantation industry, which is carried on by scientific methods and with considerable capital, had reached considerable importance, and was considered likely to increase. At the end of the year considerable interest was being shown in the outcome of certain legislative measures which were deemed of the greatest importance to the rubber trade of the world. The belief was held that under the terms of a law of 1903, permitting the organization of syndicates by agricultural and rural industries, "for the defence of their interest," a syndicate of Brazilian producers and collectors would be formed whereby the rubber industry would be placed more largely in the hands of Brazilians, and thus secure increased government favors. In fact, in 1908 it was proposed definitely to extend the benefits of the act mentioned to the rubber interests, by decreasing to *aviadores* or collectors of rubber, or

to producers of the community, the export duties on fine and medium rubber from 22 to 18 per cent. This proposition of the State Legislature was presented to the Governor of Para for approval, and was protested by American and English houses. The actual production of rubber and its preparation for market have always been in the hands of the Brazilians, while the export trade, which such a proposal would threaten, has been carried on by American and European firms. The protest was made under the Brazilian Constitution, which guarantees to all, foreigners as well as natives, equal rights in trade. The successful carrying out of such a scheme, it was believed, would involve a discrimination of at least 4 per cent. in favor of the Brazilians, in an industry where the trade is worked on a basis of ½ to 1 per cent. It was further feared that the favors to such a syndicate would not be confined to reduced export tax, but would be extended to additional commercial facilities, free admission of materials imported for the construction of improvements, etc. The success of the scheme in Para might lead to its extension to the State of Amazonas, of which Manaus is the capital, with equally serious consequences. Other changes in tax conditions in Brazil, and the proposed port charges at Para attending the development and completion of the new harbor, were matters of some anxiety to those in the rubber business, especially the foreign merchants.

The interest in rubber plantations continued in the East, and the results of the important work that has been undertaken in Ceylon and Malaya for the cultivation of rubber were increasingly apparent. In these two regions, in less than 11 months in 1908, there were produced 3,401,734 pounds of plantation rubber, as compared with 1,935,103 pounds for the corresponding year of 1907, and 908,965 pounds for the preceding year. In Malaya, nearly all within three years, 280 square miles have been planted with rubber trees artificially, and the total number is estimated at the end of 1908 at 97,558,440. This is one species of the tree *Hevea*, which, when mature, yields an average of 2 or 3 pounds of rubber per tree. All the trees tapped in Malaya in 1907 yielded an average of 1 pound 12 ounces; the trees in Perak alone yielded 2 pounds 1 ounce; those in Negri Sembilan 2 pounds 7 ounces. These figures relate to over 1,300,000 trees.

The imports of unmanufactured india rubber into the United States in 1908 amounted to 76,289,474 pounds, valued at \$44,782,526, as against 68,653,291 pounds, valued at \$49,813,361 in 1907. Of this about one-half comes from Berlin. The exports of manufactures of india rubber in 1908 and 1907 were valued at \$6,887,419, and \$8,164,836, respectively.

RUDINI, ANTONIO STARRABA, Marquis di. An Italian statesman, died on August 7, 1908. He was born in Palermo on Apr. 6, 1839, and took part with Garibaldi in the movement which finally freed Naples and Sicily from the rule of the Bourbons. He became Mayor of Palermo in 1866, and distinguished himself during an epidemic of cholera by his courage and resourcefulness. In 1869-70 he was Minister of the Interior, which office he resigned because of a disagreement with his colleagues on matters of policy. For the next twenty years he was in the opposition, disapproving of the Triple Alliance and the economic policies of the various governments during that period. He was

Premier in 1891-92, during which time occurred a tendency towards strained relations with the United States on account of the lynching of seven Italians at New Orleans. During his tenure of that office he was forced to renew the Triple Alliance, the policy of which he had always disliked. He was again premier in 1896-98.

RUM. See LIQUORS, FERMENTED AND DISTILLED.

RUMANIA. A kingdom of the Balkan peninsula. Area, 50,715 square miles. Population (1899), 5,956,960; estimated at the end of 1907, 6,684,265. In 1907 there were 70,263 marriages, 274,487 births (exclusive of 6567 still-births), and 175,794 deaths. The principal cities, with their populations in 1907, are: Bucharest, the capital, 288,565; Jassy, 78,997; Galatz, 65,063; Braila, 59,446; Ploeshti, 47,740; Craiova, 45,772; Botosani, 33,550; Focsany, 34,420; Berlاد, 24,179; Buzeu, 23,402; Turn Severin, 20,479; Tulcea, 20,290.

AGRICULTURE. The distribution of the cultivable land among the various classes of owners was in 1905 as follows:

Size of farms	Pro- priators	Area	Per ct. of area
Hectares	Number	Hectares	
10 and under	1,015,302	3,319,695	41.66
Over 10 and under 50..	36,318	695,953	8.73
Over 50 and under 100..	2,381	165,456	2.08
Over 100	4,471	3,787,192	47.53
Total	1,058,172	7,968,296	100.00

The area and production of the principal crops in 1907 and 1908 were as follows:

Crop	1908		1907	
	Area	Production	Area	Production
	Acres.	Win. bu.	Acres.	Win. bu.
Wheat	4,452,000	54,813,000	4,236,100	42,237,000
Rye	363,400	2,640,000	362,400	2,554,000
Barley	1,532,500	12,873,000	1,259,500	20,062,000
Oats	1,211,600	17,212,000	871,000	17,842,000
Rape seed....	32,200	259,000	41,200	152,000
Flaxseed	44,900	180,000	31,700	159,000
Malze	4,992,300	497,900,000	4,765,600	57,576,000

aPreliminary estimate; subject to revision.

The areas of other important crops in 1908 were: Millet, 132,100 acres; hemp, 12,100; potatoes, 24,400; sugar-beets, 22,300; tobacco, 22,900; plum orchards, 173,600; vineyards, 194,300. The production of wine in 1907 was 25,559,161 gallons. The production in sugar-beets in 1907-8 was 109,156 metric tons; in 1908-9, 162,432 metric tons. In 1907 there were produced 436,056 kilos of silk cocoons by 55,101 cultivators in 21,105 communes. For the feeding of the worms, the leaves from 624,820 mulberry trees were gathered. The severe winter of 1906-7, followed by a dry spring and summer, did great damage to the crops of 1907 in point of quantity, but their quality, particularly of wheat, was satisfactory. In 1908 the production of all the crops, except maize, fell below the average for 1903-7. The probable requirements of maize for home consumption are placed officially at 42,500,000 bushels, leaving a surplus of some 55,500,000 available for exportation. In quality the grain

does not come up to the standard, owing to rains during harvest. The weight of this year's wheat is estimated at 60.8 pounds per (Winchester) bushel; this is under 1907, but above the average for 1903-1907.

From 1904 to 1907 the average yield of the five leading grains—wheat, rye, barley, oats, and maize—was invariably much higher on the large estates. In 1907 the average production of bushels to the acre on large and small farms was as follows:

	Wheat	Rye	Barley	Oats	Maize
Large farms....	10.6	8.5	19.1	24.1	15.2
Small farms....	9.3	6.9	14.9	14.9	11.4

A few instances are recorded of minor crops in which the yield on small farms was superior, the most important being rape seed in 1904-1906, and hemp seed in 1906 and 1907.

MINERALS. The only minerals exploited on a large scale are salt, coal, and petroleum. The output of coal in 1905-6 was 140,671 metric tons. The salt production in 1907 was 124,340 metric tons. The sale of salt is a government monopoly. The output of petroleum in 1907 was about 1,130,000 tons. In order to encourage small distilleries and prevent the Standard Oil Company from absorbing the Rumanian petroleum industry, a royal decree was issued on June 24, 1908, fixing the price of lamp oil for the three following months at 8.70 francs per 100 kilos, and the maximum number of metric tons for domestic use at 42,000, to be supplied proportionally by each refinery. All surplus production over the maximum was to be exported—of course, at world-market prices.

MANUFACTURES. In 1907-8 there were 114 large flour mills (against 101 in 1906-7), and over 100 smaller mills. The production of flour by large mills in 1907-8 was 284,406,493 kilos, against 334,834,630 kilos in 1906-7, the decrease in 1907-8 being due to the poor crops of 1907. There are 7 mills, each of which produces over 10,000,000 kilos of flour annually, the largest of them having produced in 1907-8, 19,725,943 kilos. The large mills are grouped around the four cities of Bucharest, Braila, Jassy, and Craiova. The quantity of flour exported in 1907-8 was 26,417,289 kilos. The production of beet-sugar in 1907-8 was 16,350 metric tons; in 1908-9, 22,600.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1906 amounted to 422,114,125 and 491,360,178 lei respectively (1 lei=franc=19.3 cents). The principal imports were: Metals and metal manufactures, 92,200,000 lei; vegetable textiles, 79,123,000; machines, 38,928,000; wool and woollens, 37,600,000; vehicles, 23,563,000; confectionery, 17,046,000; leather and leather manufactures, 15,978,000. The principal exports in 1906 were: Cereals and flour, 405,411,000 lei; wood and wooden articles, 28,532,000; petroleum, 18,881,000; vegetables and fruits, 17,310,000. The trade with the principal countries of origin and destination was as follows, in lei:

From and to	Imports	Exports
Austria-Hungary	119,388,000	31,878,000
Great Britain	62,681,000	52,553,000
Germany	142,264,000	23,780,000
Belgium	10,732,000	152,495,000
Italy	18,212,000	91,274,000
Netherlands	3,597,000	54,840,000
France	19,413,000	28,175,000

In 1907 the ports were entered by 31,338 vessels of 9,280,073 tons, and cleared by 30,874 vessels of 9,352,881 tons. The merchant marine on Jan. 1, 1908, consisted of 84 steamers of 20,527 tons, and 382 sailing vessels of 115,699 tons. The length of railways on Sept. 1, 1908, was 1,990 miles, the whole of it, a few miles only excepted, belonging to the State. The length of telegraph lines in 1907 was 4,769 miles.

GOVERNMENT AND FINANCE. The form of government is a constitutional monarchy. The present King is Carol I., born Apr. 20, 1839, elected "Domn," or Lord of Rumania, Apr. 20, 1866, and proclaimed King Mar. 26, 1881. The King is childless and the succession has been settled on his brother's son, Prince Wilhelm. The elections to the Senate and Chamber of Deputies are indirect, and the franchise is based on property qualifications. The executive power is exercised through a responsible cabinet. The King has a suspensive veto. In 1906-7 the revenue amounted to 292,356,207 lei, and the expenditure, 239,435,783. The budget for 1908-9 balanced at 411,011,036 lei. The principal estimates of revenue were: Direct taxes, 42,240,000 lei; indirect taxes, 63,360,000; stamps and registration, 21,400,000; State monopolies, 58,350,000; public services, 103,845,000; State domain, 28,579,000. The principal estimates of expenditure were: Public works, 73,918,264 lei; war, 54,174,668; worship and instruction, 38,706,520; finance, 176,845,247. The public debt stood on Apr. 1, 1908, at 1,399,182,230 lei.

ARMY AND NAVY. The military forces were reorganized in 1908 and now consist of the regular army and its reserve, the militia and the territorial army. Military service is universal and compulsory from the completion of the 21st to that of the 40th year, divided as follows: 7 years in the regular army; 5 years in the reserve; 3 years in the militia; and 4 years in the territorial army. Of the 7 years in the regular army, 2 are spent in the ranks and 5 on leave for dismounted troops, and 3 in the ranks and 4 on leave for mounted troops. The annual contingent is about 46,000 men. There are 34 regiments of infantry and 9 battalions of rifles; 17 regiments of cavalry; 12 regiments of field artillery; 2 regiments of fortress artillery; and 2 regiments of engineers. The peace strength in 1908 was 83,902 men of all grades, an increase of 13,284 over the preceding year; the military budget was 54,174,668 francs, an increase of 7,220,499 francs over the preceding year. The strength of the field army with its reserves is about 170,000 men and the available strength in time of war 350,000. The fleet consisted, at the beginning of 1908, of one unprotected small cruiser, 1,320 tons; four gun-boats, 410 tons; and 12 torpedo boats, 490 tons.

RUMELIA, EASTERN. See **BULGARIA**; **BALKAN QUESTION**.

RUSSELL SAGE FOUNDATION. See **CHARITY ORGANIZATION**.

RUSSIA. An empire of eastern Europe and northern Asia. Total area, including inland waters, Finland (q. v.), and other dependencies, 8,747,241 square miles. The total population in 1897 numbered about 130,507,000; in 1908 it was estimated at over 150,000,000. The population of the principal cities, according to the latest censuses or estimates, is as follows: St.

Petersburg, the capital (1905), 1,429,000; Moscow (1907), 1,359,254; Warsaw (1901), 756,426; Odessa (1900), 449,673; Lodz (1900), 351,570; Kiev (1902), 319,000; Riga (1897), 282,230; Kharkov (1897), 173,989; Vilna (1900), 162,633; Kazan (1900), 143,707; Saratov (1897), 137,147; Yekaterinoslav (1900), 135,552; Kishinev (1900), 125,787; Astrakhan (1900), 121,580; Rostov on Don (1897), 119,476; Tula, (1897), 114,733. The proportion of the city population to the total is less than in any other European country. The population of towns of 3,000 inhabitants and over in 1906 was 18,672,600; of villages, 127,746,500. In 1904 there were 6,413,485 births and 3,949,227 deaths, giving a natural increase of 2,464,258. The birth rate per 1000 of population was 47.3; the death rate, 29.1. Both the birth and the death rate are exceptionally high. The number of persons entering the empire in 1906 was 536,107, of whom 202,205 were Russians and 333,902 were foreigners; of those leaving, 596,189 (329,759 Russians and 266,430 foreigners). The emigrants designated as Russians are mostly members of subject nationalities, such as Poles, Jews, Finns, etc.

INTERNAL MIGRATION. The historic, glacier-like movement of the Russians from west to east—from the basin of the Dnieper to the Pacific Ocean—has of late years gained in momentum through the operation of two powerful causes, namely, the construction of new railways, particularly the Trans-Siberian, and the steadily diminishing amount of land at the disposal of the peasantry in European Russia. The hopes which the revolution had held out to the peasants of expropriating the nobles of their estates, have vanished. The government's solution of the problem, consisting in buying up the nobles' lands at high prices and selling them through the Peasants' Bank, does not appeal to the poor peasants. The soldiers returning from the Russo-Japanese war have brought back a knowledge of the natural riches of Siberia. And the government, which formerly hindered rather than favored the emigration of the peasants from European Russia, has now become an active promoter of emigration, first in order to have a population capable of rendering resistance in case of a future invasion; and secondly, in order to forestall the threatening economic conquest of eastern Siberia by the ever-increasing inflow of Chinese and Japanese.

From 1861 to 1892, 550,000 peasants entered Siberia. On Dec. 10, 1892, the Trans-Siberian Railway committee was created to colonize the land opened by that road, and generally to promote the economic development of Siberia. As a result of the labors of this committee, the number of emigrants greatly increased, and their mortality rapidly diminished. The number of emigrants increased to 1,000,000 during the period 1893-1899, and the number who died on the way decreased from 3000 out of 56,000 emigrants in 1894, to 300 out of 220,000 in 1899. In the latter year the emigration to Siberia reached the record figure of 223,209, but after that year the movement slackened, falling in 1905 to 33,062. But in 1906 the number increased to 200,794; in 1907 the number was 619,904, of whom from 80,000 to 90,000 settled in the South Ussuri district of the Maritime

Province; and in the first five months of 1908 the number was over 400,000.

EDUCATION. In 1897 the percentage of illiterates over the country as a whole, exclusive of Finland, was 72. In 1906 there were 90,727 elementary schools, with 204,736 teachers and 5,515,185 pupils. The number of middle schools—gymnasias, progymnasias, *real* schools, normal schools, etc., is over 1400, with about 400,000 pupils, besides special schools under the Ministry of War, with about 20,000 pupils; commercial, trade, and agricultural schools under the Ministries of Finance and Agriculture, with about 32,000 pupils; and priests' seminaries under the Holy Synod, with 20,000 pupils. Higher institutions include 9 universities, with over 20,000 students, 6 medical schools, 4 veterinary, 3 law schools, 10 technical institutes, 2 mining, 4 engineering, 4 agricultural, 1 forest, 1 topographic, 5 philological, 1 archaeological, 6 military schools, etc.

FORESTS. The area under forests in European Russia, including Finland, is about 550,000,000 acres, or 39 per cent. of the total area. The extent of forest in Asiatic Russia is unknown. In 1906 the State forests embraced 286,428,666 acres in European Russia, 13,418,328 acres in the Caucasus, 361,945,497 acres in Asiatic Russia, exclusive of the Amur region, and 288,742,000 acres in the Amur region. The total area of forest land in the Amur and Maritime provinces is estimated at 509,000,000 acres, but it is by no means so densely wooded as the forests of North America. Both hard and soft woods are found in considerable variety. The export of timber and lumber from Russia, exclusive of Finland, in 1906 amounted to 98,248,000 rubles (1 ruble=51.5 cents).

AGRICULTURE. The principal crops of the 72 provinces of European Russia (exclusive of Finland) and Caucasasia in 1907 were as follows, in metric tons: Rye, 20,212,209; wheat, 13,684,837; spelt, 114,350; barley, 7,577,760; buckwheat, 1,003,390; millet, 2,260,800; maize, 1,273,220; peas, 545,000; lentils, 186,260; beans, 68,710. The oats crop fell from 13,416,130 tons in 1906 to 4,881,290 tons in 1907. Potatoes increased from 26,623,550 tons in 1906 to 28,169,370 in 1907.

The preliminary returns of the principal grain crops for 1908 embraced for the first time 73 provinces, the Asiatic province of Uralsk having been added to the number from which returns are collected. They show an increase in the wheat total over 1907 and 1906, though it is still much below the level of 1902-1905. The following table shows the results in detail:

PRINCIPAL GRAIN CROPS OF RUSSIA.

Crop	1908 (preliminary)	1907 (final)	1906 (final)
Wheat, winter.....	<i>Bushels (a)</i> 147,900,000	<i>Bushels (a)</i> 161,918,000	<i>Bushels (a)</i> 238,519,000
Wheat, spring.....	421,300,000	348,774,000	269,873,000
Total wheat.....	569,200,000	510,692,000	508,392,000
Rye, winter.....	768,900,000	787,611,000	650,905,000
Rye, spring.....	14,200,000	20,515,000	15,941,000
Total rye.....	783,100,000	808,126,000	666,846,000
Barley (a).....	377,700,000	353,447,000	312,038,000
Corn (maize).....	61,300,000	50,764,000	70,760,000
Oats.....	942,300,000	907,261,000	713,005,000

a Bushels of weight: Wheat, 60 pounds; rye and corn, 56 pounds; barley, 48 pounds; oats, 32 pounds.

b Apparently not including winter barley, which was separately returned in 1906 as 3,011,000 bushels.

The area under sugar-beets in European Russia in September, 1908, was 498,035 dessiatines (1,389,596 acres), a decrease of 56,885 dessiatines (156,434 acres) from 1907. The yield of beets in 1907 was 8,634,118 tons, and for 1908 it was estimated at 8,684,096 tons (126.8 cwts per acre). Poland contributed over one-eighth of this total. The roots contained in 1908, 17.89 per cent. sugar, against 18.53 per cent. in 1907, which was the best record for Russia. A few years ago 13 per cent. sugar was considered a good return.

The area under hops in 1908 had greatly increased over preceding years, but the hop crop was the smallest in ten years. The yield was 270,000 poods (1 pood=36.112 lbs.), against 350,000 poods in 1907, 300,000 in 1906, 400,000 in 1905, and 280,000 in 1904. The 1908 crop was about 60 per cent. the quantity of the average crop. The quality, however, was good. The wine production of 1907 was about 68,640,000 gallons. Tea is raised in small quantities in the neighborhood of Batum, on the Black Sea.

Tobacco covers about 175,000 acres annually in southern Russia, Caucasasia, and Turkestan. The average annual production is 216,000,000 pounds; in 1906 only 161,460,000 pounds were produced. Of the total crop, about 144,000,000 pounds are of very inferior quality. High-grade Turkish leaf is imported for the superior grades of cigarettes.

A semi-official estimate of the 1908 cotton crop, made in October, gives the total at 11,718,981 poods, or 423,204,280 pounds. The estimate by regions was as follows, in pounds: Fergana, 244,220,430; Bokhara and Khiva, 73,074,233; Transcaspiya, 27,760,715; Syr-Daria, 18,264,297; Samarkand, 18,449,230; Transcaspiya, 41,435,374. Compared with 1907, every region shows an increase ranging from 30 to 75 per cent., except Transcaspiya, which shows a falling off of 10 per cent. Compared with 1906, an average year, the estimated increase is 25,000,000 pounds.

The impoverished condition of the peasants and the decline of agriculture are strikingly exhibited in the decline of the number of live stock. In 72 provinces, including European Russia proper, Poland, 4 provinces of the Caucasus, and 8 provinces in Asia, the number of live stock in the past three years was as follows:

	1905	1906	1907
Horses	29,589,352	28,785,338	28,338,000
Cattle	40,564,360*	43,203,711	42,305,000
Sheep and goats..	64,393,708	61,649,251	58,510,000
Pigs	13,668,300	12,734,261	12,279,000

*1904.

The export of butter in 1907, exclusive of Siberian butter, was 3,395,939 poods, against 2,639,340 poods in 1906. The export of Siberian butter in 1907 was 3,413,640 poods, against 2,897,776 poods in 1906.

MINING AND METALS. Next to the United States, Russia is the greatest producer of petroleum. In 1907 the crude petroleum production was 8,247,795 metric tons, or 61,850,734 barrels of 42 gallons each, representing 23.5 per cent. of the world's production. In 1908 naphtha was discovered in the Oukhta district of the Urals. Russia is the foremost producer of

platinum, the output of which was 142,570 fine ounces in 1907, against 210,318 in 1906. The output of gold in 1907 was 1,282,934 fine ounces; lead (1907), 110 short tons; zinc (1907), 1680 short tons; copper (1907), 33,600,000 pounds, against 23,497,600 in 1906; quicksilver (1906), 210 metric tons. Until lately the most important Russian sulphur beds were in Daghestan, North Caucasia. The beds are extensive and have 20 per cent. of sulphur, while the Sicilian beds contain only from 14 to 17 per cent. of sulphur. Their maximum annual output has been 1500 tons. But recently sulphur beds were discovered in Transcaspiia, which promise to be the second largest in the world. The average of sulphur is 60 per cent., and the ore lies exposed, so that no shafts are necessary. The beds are situated 100 miles from Khiva, on the Amu-Darya, and 170 miles from Askhabad, on the Transcaspiian Railway. The most extensive coal fields are those of South Russia and Poland, followed by those of Siberia, the Urals, Central Russia, and the Caucasus. The coal output of 1907 was about 1,454,500 poods (1 pood = 36.112 lbs.). In 1908 it was reported that great coal deposits estimated to contain 600,000,000 poods were discovered near Cheremkovskoye, on the Trans-Baikal Railway. The Russian production of coal and coke is insufficient for the needs of the country, and great quantities of these have to be imported. The output of pig iron in 1907 was larger than in any preceding year. Excluding the manganese ore exported from Poti, the 1907 output was 262,100,000 poods, against 236,400,000 poods in 1906. The exports of pig iron increased from 1,250,000 poods in 1901 to 33,300,000 in 1906 and 60,500,000 in 1907. The great bulk of these exports goes to Great Britain and Germany. The South Russian metallurgical works received in 1907 some 5,200,000 poods of iron ore more than in 1906, but the stock on hand at the end of 1907 was 31,000,000 poods, against 10,000,000 a year previously. The consumption of iron ore by Polish works decreased by about one-third, and several Polish blast furnaces had been idle. In October, 1908, it was reported that there was finally formed the South Russian metallurgical trust, under the title of the Joint Stock Company of Metallurgical Works. The trust includes nine companies, controlling 83 per cent. of the Southern works and 45 per cent. of the total Russian metallurgical output. In the year 1906-7 the nine constituent companies turned out over 240,182,000 poods of iron and steel products. The stock and bond issue, it was stated, would amount to 170,000,000 rubles.

The discovery of pearl in the rivers of the Kamchatka peninsula was reported in 1908. The work of exploration was being carried on with the aid of American capital.

MANUFACTURES. During the sugar campaign 1907-8 (Sept.-Aug.), there were 278 factories in operation, against 279, in 1906-7. The deliveries of sugar-beets to the factories in 1907-8 amounted to 534,550,460 poods, or 9,621,908 short tons, against 630,562,520 poods, or 11,350,125 short tons, in 1906-7. But the quality of the roots in 1907-8 was so much superior to that of the preceding season that the difference in the yield of sugar was not as great as had been feared. The production of 1907-8 was as follows: Refined white loaf sugar, 6,113,609

poods, or 110,045 short tons; white sugar in crystals, 69,912,891 poods, or 1,258,432 short tons; yellow sugar, 15,907 poods, or 287 short tons; refined treacle, 3,759 poods, or 68 short tons. The corresponding figures for 1906-7 were: Refined loaf sugar, 6,618,197 poods, or 119,127 short tons; white crystal sugar, 71,033,696 poods, or 1,278,606 short tons; refined treacle, 19,403 poods, or 350 short tons. No yellow sugar was mentioned for that period. In terms of raw sugar, the production of 1906-7 was 1,458,823 metric tons; in 1907-8, 1,421,433 tons; and for 1908-9 it was estimated at 1,325,000 tons. The export of sugar for the 1907-8 campaign reached the unprecedented quantity of 17,523,794 poods, or 282,642 metric tons, made up of 56,405 tons refined sugar, 224,713 tons white crystals, and 1524 tons yellow sugar.

By the terms of the international agreements of Aug. 22, 1907, and Dec. 19, 1907, prolonging the international sugar convention for another period of five years, beginning with Sept. 1, 1908, Russia conceded a limitation of its sugar exports in return for the authorization to maintain its interior legislation and its system of indirect premiums. Its quota of exportation for the respective seasons were fixed as follows: 1907-8 and 1908-9, 300,000 tons each; for each succeeding season up to and including 1912-13, 200,000 tons. This limitation of exports does not apply to Finland, Persia, and to the other Asiatic countries directly bordering on Russia.

The amount of sugar to be placed in the home market is fixed annually by ministerial decree. For the 1908-9 season it was fixed at 51,000,000 poods, about 822,600 tons. The inviolable reserve for the same period was fixed at 7,000,000 poods—about 112,900 tons. The Minister of Finance was given the usual authority to draw on the reserve stock should circumstances tend to raise the prices, which are fixed.

About 12 billion cigarettes are made every year, of which three-fourths are of second quality. The production tends to increase, particularly of the latter. About 370,000,000 cigarettes are annually exported.

During the year ending Aug. 31, 1908, there were 7,855,210 spinning spindles, showing a very small increase since 1900. The total consumption of cotton during the year ending Aug. 31, 1908, was 923,118 bales, of which 503,951 bales, weighing 270 to 290 pounds each, were Russian grown cotton, 313,476 bales American, 8765 East Indian, and 46,081 Egyptian. The Moscow district, the centre of the textile industry in Russia proper, did a good textile business in 1907. There was a shortage over a large part of the country, owing to previous strikes and railway dislocation, while Lodz, the Polish textile centre, was not working. Thus the Moscow manufacturers absolutely cleared out all their storehouses, selling at very high prices old stuff that had been on their hands for years. The wages of the textile workers had to be increased, but business was so good that manufacturers could very well afford the advance.

The manufacture of artificial silk is increasing. About 1903 a Belgian company erected a factory for this manufacture. In 1907 a French company started an artificial silk factory in the province of Moscow, and in December, 1908, it was reported that another factory was

to be constructed near Moscow, with a capital of 2,000,000 rubles.

The manufacture of agricultural implements has had an immense increase in recent years, due largely to German and English enterprise. The agricultural implement works in Kharkov, owned by a German company, employ 1200 men. At Berdiansk, on the Sea of Azov, an Englishman has a large establishment for the manufacture of mowers, reapers, and "lobo-graikas," a cheap grade of reapers. In Odessa an establishment, started on a small scale by a German in 1884, is credited with an annual production of 120,000 plows per annum. At Yelisavetgrad an English establishment for the manufacture of high-grade implements employs 1200 men. The number of ships built in 1907 was 13, of 20,700 tons.

FACTORIES AND WORKERS. According to the factory inspectors' report for 1904, published in 1907, there were subject to inspection at the beginning of the year 1904 15,375 establishments with 1,684,334 employees, and at the end of the year 14,700 establishments with 1,663,080 employees. The decrease was mainly due to the closing of 745 establishments with 28,744 employees. The closed establishments were mostly of the smaller type, with an average of 38.6 employees, so that the average number of employees per establishment increased from 109.6 in the beginning of the year to 113.1 at its close.

While the majority of the establishments are of the smaller type, 81.7 per cent. of them containing 100 workingmen or less, and 67.7 per cent. 50 workingmen or less, the majority of the factory employees worked in large establishments, 78.3 per cent. in those employing over 100 workers and 50.3 per cent. in those employing more than 500 workers.

Of the total number of employees at the end of 1904, 1,204,553 were males (72.4 per cent.) and 458,527 females (27.6 per cent.). The number of workers over 17 years of age was 1,486,235 (89.4 per cent.); between 15 and 17 inclusive, 151,958 (9.1 per cent.); and children of between 12 and under 15 years, 24,887 (1.5 per cent.).

According to a statement of the British consul at Moscow, in his report on the economic condition of the country in 1907, the conditions of life for the workmen are worse than they ever were before. The increased cost of living more than offsets the increase in wages.

FOREIGN COMMERCE. The imports and exports of merchandise by great classes in 1906 and 1907 are shown in the following table, in thousands of rubles (add 000):

	1906		1907	
	Imports	Exports	Imports	Exports
Foods	104,487	597,413	118,890	559,745
Raw materials	337,410	343,544	375,776	383,342
Animals	917	27,303	1,054	22,731
Manufactures..	177,099	31,127	200,508	26,196
Totals	619,913	999,387	696,228	992,013

The principal articles of import in 1906 were, in thousands of rubles: Cotton, 78,161; tea (61,351,360 lbs., including 12,437,208 lbs. from Ceylon and 3,419,316 lbs. from India), 77,444; machinery, 59,834; metal manufactures, 43,780; coal, 29,861; rubber, 27,748; wool, 24,556; fish, 23,906; cotton goods, 21,130; fruits, 16,734; raw silk, 15,518; chemicals and drugs, 15,265; wool yarn, 15,125; plants and seeds, 11,791; wine, 10,678; copper, 10,059; woolen goods, 9,854; hides and skins, 8,426. The principal exports in 1906 were, in thousands of rubles: Cereals and flour, 451,259; timber, 98,248; flax, 67,956; eggs, 55,157; butter, 44,812; animals, 28,056; seed-cakes, 25,781; cotton goods, 24,823; petroleum, 24,537; bran, 21,614; hides and skins, 19,758; sugar, 19,510; hemp, 11,718. The trade (exclusive of precious metals) with the principal countries of origin and destination, in 1906 for the whole of Russia, and in 1907 for European Russia only (including the trade of the Caucasus by the Black Sea), was as follows, in thousands of rubles:

	Russia, 1906		European Russia, 1907	
	Imports	Exports	Imports	Exports
Finland	31,983	47,277	29,263	50,269
Denmark	6,437	30,772	5,394	29,916
Sweden	6,547	9,589	11,249	8,287
Norway	5,983	6,344	7,922	7,478
Germany	298,422	284,675	311,397	290,375
Austria-Hungary	21,357	45,045	23,615	42,582
France	28,717	76,506	28,596	73,356
Belgium	7,209	41,330	9,040	37,252
Netherlands	13,233	107,959	11,549	114,329
Great Britain	105,726	225,447	114,284	228,770
Italy	10,895	51,959	13,042	34,455
Rumania	844	17,583	2,059	13,550
Turkey	7,826	15,242	6,468	18,130
Egypt	12,219	2,552	12,240	3,419
Persia	24,503	31,756	.....	.....
China	97,427	57,530	15,820	630
United States	47,450	5,712	53,291	7,727

Owing to the great indebtedness of Russia to other countries, her exports regularly exceed her imports very considerably. In 1907 the excess of exports was much below the average. The falling off was chiefly in the export of grain, and was due to two years of famine.

THE NOVGOROD FAIR. The commercial importance of the fair held annually at Nizhni-Novgorod from July 28 to Sept. 7, has declined of late owing to the development of means of communication, particularly the construction of the Trans-Siberian. Formerly the goods were taken in bulk to the fair and sold from stock, but now they are largely sold from samples. The amount of business transacted in 1907 was considered satisfactory, notwithstanding the scarcity of cash and the difficulty experienced in arranging credit. The total value of goods sold amounted to \$69,525,000, against \$66,435,000 in 1906. Sales of cotton goods represented nearly one-third of the total value. Wool sold for \$1,347,000; woolen goods, \$4,990,000; raw hides and skins, \$4,450,000; dressed leather, \$1,545,000; horsehair and bristles, \$813,700; furs, \$5,665,000 (out of a total value of \$7,982,500 shipped to the fair); rubber goods and shoes, \$1,133,000; metals, \$2,060,000; tobacco and its manufactures, \$1,545,000; chemicals and drugs, \$2,678,000. The Russian Imperial Bank and seven private banks were operating at the fair. The banking transactions were as follows: Bills of exchange discounted, \$10,836,000; payments received on account of bills of exchange discounted and deposited for collection, \$10,161,000; drafts paid, \$25,951,000; drafts sold, \$38,606,000.

NAVIGATION AND SHIPPING. In 1906 the ports of the empire were entered by 11,560 ships of 11,292,000 tons (1,174,000 Russian), and cleared by 11,685 ships of 11,349,000 tons (1,192,000 Russian). The distribution of the tonnage entered and cleared in 1906 by seas was as follows:

	Tons Entered	Tons Cleared
White Sea	568,000	571,000
Baltic Sea	3,939,000	4,127,000
Black Sea and Azov	5,916,000	5,874,000
Pacific Ocean	869,000	777,000

The merchant marine on Jan. 1, 1908, consisted of 906 steamers, of 440,854 tons, and 2544 sailing vessels, of 260,061 tons, the distribution by seas being as follows:

	Vessels	Tons
White Sea	485	35,394
Baltic Sea	1,004	187,464
Black Sea and Azov	1,129	235,875
Caspian Sea	28	20,623
Pacific Ocean	804	221,559
Total	3,450	700,915

The line from Libau to New York, started in 1907, was given up in 1908, the steamers being used on the line to the Black Sea. The Volunteer Fleet started in 1908 direct steamship communication between Vladivostok and Chinese

and Japanese ports, including Tsuruga, Nagasaki, and Shanghai. Passengers and freight are transported, the latter including chiefly Siberian butter, Russian raw materials, and Chinese tea. Subsidies are paid to steamship companies on the Lena River, Lake Baikal, and the rivers of the Amur basin.

INTERNAL COMMUNICATIONS. On Jan. 1, 1908, the Russian railway system, including 2072 miles in Finland, was made up as follows, in English miles: State lines 23,458; companies' lines, 11,981; local lines, 1447; total in Europe, 36,886; total in Asia, 7560; grand total, 44,446 miles. The Asiatic railways include 1071 miles of the Eastern Chinese Railway, in Chinese territory. In 1907 over 1072 miles of new line were opened, besides 613 miles of second tracks on existing lines. The length of line opened for temporary traffic at the beginning of 1908 was 229 miles; of lines under construction, 1111 miles; of lines for which permission to build was granted, 1321 miles.

In 1908 the Duma voted the money for double-tracking the Trans-Siberian line. Work was to be commenced immediately on the Omsk-Irkutsk section, in western Siberia, which was to be completed by 1911. The plans for improving the line include the reduction of inclines, the lengthening of curves, the reconstruction of the mountainous section between Atchinsk and Irkutsk, the improvement of the ferry service across Lake Baikal and of the line surrounding it, and the raising of the general efficiency of the line. The estimated cost, exclusive of transportation of materials, is 170,753,900 rubles.

Another great undertaking sanctioned by the Duma in 1908 was the construction of a railway, over 1300 miles in length, along the banks of the Amur River. The line will apparently branch off from the Trans-Siberian line at Chita, and will follow the course of the great river, in a vast semicircular sweep, until it unites with the Ussuri Railway at Khabarovsk. A branch line will be built along the Zeya River to Blagovestchensk. The cost of construction alone is estimated at over 220,000,000 rubles—a sum which will probably be exceeded. There are rugged mountains to be traversed, and heavy bridges will have to be built across the Amur, which is liable to floods. The two chief purposes which the line is to serve are, first, to have a line to Vladivostok entirely on Russian soil; and secondly, in the words of Premier Stolypin, to reach the 40,000,000 acres of cornland in the Ussuri district. Work was begun in 1908. (See *History*, below.)

Other plans of State railway construction involve a new line from Tumen to Omsk, in western Siberia, at a cost of 31,000,000 rubles, and a line from Nizhni-Novgorod to Viatka. The latter will form another railway system across the north of European Russia, parallel to the Tula-Penza-Samara-Cheliabinsk line, over which most of the passenger traffic to the Trans-Siberian passes.

In Nov. 1908, it was reported that a new Russian company was being formed under the name of the Southern Siberian Railways Company. The statutes and plans of construction had already been laid before the government. The first road which the company proposed to construct was to be from Omsk southward to Semipalatinsk, on the Irtysh river, via Pavlodar, a distance of 1134 versts (1 verst = 0.663 mile),

Besides this the company proposes to construct in Siberia warehouses, elevators, steamboat landings, and branch lines.

Towards the end of 1908 the Perm-Yekaterinburg railway into the Urals was nearing completion. This railway was expected to do much towards increasing the mining output of the Urals, and many of the mines were being enlarged in anticipation of the increased transportation service.

The Finnish Senate assigned in 1908 the sum of 2,500,000 rubles for connecting the Russian and Finnish railways.

The total length of telegraph lines in 1906 was 150,556 miles, of which the State owned 104,696 miles; the railways, 43,267 miles; and local lines, 2593 miles.

GOVERNMENT. The Emperor still retains the old title of "Autocrat of all the Russias." The imperial decree of Oct. 30, 1905, granting the people the inviolability of the person, freedom of conscience, press, meeting, and association, and promising the establishment of a national assembly, or imperial *Duma*, without which no law shall come into effect, and which shall exercise control over the officials appointed by the Emperor—this decree has in large part now become a dead letter. The constitutional guarantees have disappeared. The *Duma* still exists, but its popular character has been almost entirely done away with, and it exercises no control over the imperial officials. The first *Duma* was elected by universal suffrage, though indirectly. It proved revolutionary in its demands, was dissolved (July 22, 1906), and a new one elected on a more restricted franchise. This was dissolved in its turn (June 16, 1907). The franchise was still further restricted so as to secure a majority for the landowners, and the representation of conquered nationalities or more radical sections of the empire—Poland, the Caucasus, Siberia—was cut down. Originally the peasants returned 2535 electors and the landowners, 1965; under the 1907 law the peasants return 1147 electors, and the landowners, 2644. The manifesto of June, 1907, reduced the number of *Duma* members from 524 to 442. The third *Duma*, in session since Nov. 14, 1907, consists of 403 delegates from European Russia proper, 14 from Poland, 10 from the Caucasus, and 15 from Asiatic Russia. The Council of the Empire, reorganized in 1906, has equal competency with the *Duma*. One-half of its members are appointed by the Emperor, the other half are elected one each by the *zemstvos*, or provincial assemblies, 6 by the Holy Synod, 6 by the universities, 12 by commercial bodies, 18 by the nobility, and 6 by the landed proprietors of Poland. Members of the *Duma* are elected for five years; the elective members of the Council of the Empire, for nine years, one-third retiring every three years. The *Duma* elects its own president and vice-president; those of the Council of the Empire are appointed by the Emperor.

Other governing bodies are the Senate, which, besides its other functions, is the supreme court of the empire. The Holy Synod, controlling the affairs of the dominant Church and also exercising a large control over education, is composed of high church dignitaries, but is presided over by a layman, the Procurator-General, who represents the Emperor. The Council of Ministers was reorganized in 1905 in order to

secure a greater degree of coöperation among the heads of departments. The ministers are responsible only to the Emperor.

Emperor Nicholas II, born May 18 (new style), 1868, ascended the throne on the death of his father, Nov. 1, 1894.

In 1908 the Council of Ministers was composed as follows: Premier and Minister of the Interior, P. A. Stolypin; imperial house and domains, Gen. Baron W. B. Fredericksz; foreign affairs, A. P. Isvolsky; war, Gen. Rödiger; marine, Admiral J. M. Dikov; justice, J. M. Shtcheglovitov; public instruction, A. N. Schwartz; finance, W. N. Kokovtsev; commerce and industry, P. Shipov; communications, Gen. N. K. Schaffhausen-Schönberg-Eck-Schauffuss; agriculture, A. W. Krivoshaïn; department of general control, P. A. Kharitnov; procurator-general of the Holy Synod, P. P. Isvolsky; State Secretary for Finland, Gen. Langhoff.

FINANCE. In 1906 the total revenue amounted to 3,355,780,610 rubles, and the total expenditure, 3,212,697,438 rubles. The budget for 1908 balanced at 2,581,403,168 rubles. The principal estimates of revenue were, in rubles: personal and land taxes, 61,870,259; business licenses, 99,208,000; income tax, 21,745,000; customs, 260,487,200; consumption and excise taxes, 243,482,600; stamps, registration, railway, and other taxes, 123,031,355; spirits monopoly, 704,225,000; post office, 51,445,100; telegraphs, 28,500,000; State domains, 681,261,344 (including railways, 550,000,000; forests, 59,500,000, etc.); loans, 181,476,470. The principal estimates of expenditure were, in rubles: Public debt, 385,965,986; Holy Synod, 29,739,152; imperial household, 16,359,595; war, 425,141,793; navy, 86,901,228; finance, 429,673,782 (including pensions, 77,616,236; whisky monopoly, 214,637,220, etc.); interior, 144,114,624 (including police, 59,290,154; posts and telegraphs, 46,898,506, etc.); commerce and industry, 32,860,099; public instruction, 52,991,818; communications, 540,663,617, including 486,379,803 for railways; land organization and agriculture, 58,457,858; justice, 65,018,176; extraordinary expenditure, 269,152,078 (including liquidation of Russo-Japanese war, 66,282,256; army and navy, 56,199,280; railway construction, 59,979,737, etc.). The public debt on Jan. 1, 1908, stood at 8,710,066,204 rubles. The credit of the Russian government rose in 1908. Thus the 5 per cents., which were quoted in 1907 as low as 80, rose to near par in 1908, closing the year at 97¼.

The proposed budget for 1909 balanced at 2,631,495,495 rubles. The proposed revenue estimates included 152,818,254 rubles out of loans to be contracted. The proposed estimated expenditure for the army was 470,623,239; navy, 88,135,050; public debt, 396,656,121; communications, 569,948,251; finance, 455,962,844; education, 72,357,873; interior, 156,232,301.

ARMY. The Russian army is divided into three parts, known as the army of European Russia, army of the Caucasus, and the Asiatic army, with the periods of service varying but slightly in each and the organization and strength not accurately known to the world at large, but described in general terms as given below:

Military service is universal and compulsory from the 21st to the end of the 43d year, with the periods of service divided as follows: Three years for dismounted and 4 years for mounted

troops in the first line or active army; then 14 years in the reserve with two periods of training of 6 weeks each, and finally 5 years in the territorial army. In the army of the Caucasus the corresponding periods are 3, 15 and 4 years respectively; and in the Asiatic army they are 4, 13 and 5 years respectively. There are numerous exceptions and modifications to these rules which can only be studied in a detailed work on the subject, and the same must be said of the organizations of the different units.

The peace strength of the Russian armies is upwards of 1,200,000 men; the field army is about 1,500,000 men; and the available war strength about 4,000,000 men of all grades and classes. In 1908, Russia reorganized the bureaus of the War Department; introduced certain changes with a view to lessening the weight of the foot soldiers' pack; greatly improved regimental transportation; published new and separate regulations for manœuvres; and enacted a new law requiring all officers enjoying the benefits of the military and cadet schools to serve a certain time with the line before passing to the reserve. The budget for the year 1908 was 477,165,383 rubles; an increase of 93,000,000 rubles over the preceding year. The annual contingent for the year was 472,535 men, of whom 14,000 went to frontier guards, 11,000 to the marine corps, and 16,000 to the Cossacks. Discipline continued good, the army remaining faithful to the Czar, in spite of energetic efforts to bring about the contrary.

NAVY. In 1908, the navy comprised 407 ships of all descriptions, aggregating 602,500 tons, distributed as follows: Baltic Sea, 252 ships of 370,700 tons; Black Sea, 76 ships of 169,600 tons; Pacific Ocean, 73 ships of 59,465 tons; and Caspian Sea, 6 ships of 2735 tons. Excluding, however, all antiquated ships, transports, etc., the effective navy stood at the beginning of 1908 as follows: Ten first-class battleships (6 in Black Sea), 136,050 tons; 3 second-class battleships (2 in Black Sea), 27,100 tons; 2 armored gunboats, 3435 tons; 7 armored cruisers, 73,170 tons; 7 protected large cruisers (2 in Black Sea), 46,500 tons; 1 protected small cruiser, 3150 tons; 6 unprotected small cruisers (all in Black Sea), 8950 tons; 16 gunboats, 10,060 tons; 98 destroyers (14 in Black Sea), 35,711 tons; 94 torpedo-boats (32 in Black Sea), 15,980 tons. Total, 244 ships of 360,106 tons, besides 29 submarines, with crews numbering 60,500. There were also 7 convertible cruisers, ranging from 5400 to 8480 tons. The increase in 1907 was 1681 tons. The ships under construction included 2 battleships, of 34,800 tons, and 2 armored cruisers, of 16,000 tons, besides minor craft.

The Emperor has decreed that, if a fleet is to be built, it must be built in Russia, by Russian workmen, with Russian material. The Ministry had to ask foreign aid in the preparation of plans. There was a deadlock with bidders during the year on account of the severity of Russian conditions. In 1907, Vickers-Maxim, of England, prepared plans for a battleship of 22,000 tons, and 21¼ knots speed; the firm engaged to supervise construction, and to guarantee satisfactory results. But this fell through on account of the decree that the work must be done in Russia, by Russian workmen, with Russian material, especially as the turbines would necessarily have to be imported from

England. English, French, Italian, German, and Russian firms offered bids for the reconstruction of the navy. The Duma refused credits for battleship construction until after the reorganization of the Admiralty, where the bureaucrats, in the proportion of one to six naval officers on the active list, absorb nearly all the money voted.

HISTORY.

THE THIRD DUMA. The Duma reassembled on Jan. 21, 1908. It had first met on Nov. 14, 1907, the elections for it having been held under the new law promulgated on June 16, 1907, in violation of the "fundamental law" of the empire that no new measure could be carried into effect without the consent of Parliament. This electoral law changed completely the conditions of the franchise, cutting down the non-Russian representation, and assuring the absolute preponderance of the great landed proprietors. Representation was accorded to the Russian minorities in foreign communities, and great influence was given to the local administration in elections. The members were reduced in number from 524 to 442. The manifesto promulgating the new law had declared that there was need of a Duma that would put down the revolution and that should be nationalist in spirit and loyal to the government. This apparently was the character of the new body, which differed radically in composition from its two predecessors. Whereas in the first two Dumas the Left had an overwhelming majority and the Extreme Right was scarcely represented, in the third Duma, the Extreme Right, made up of conservative monarchists and "True Russians" or out-and-out reactionaries, was the second powerful party after the Octobrists. The Left, comprising the Constitutional Democrats, the Socialists, the Labor party and the Poles, numbered somewhat over a hundred. An Octobrist, Dr. Khomiakov, was elected president. The Octobrists seemed from the first to hold the balance of power, having their place in the Centre, and by their vote turning the tide in favor of either side. They were a loosely organized group, with their own Right and Left, and having in common only their professed allegiance to the October Manifesto of 1905 (whence their name), which declared for a constitution and a Duma which should "take a constant and active part in the elaboration of the laws." They were in accord with the Right during nearly the first half of the session, not, however, with the extreme reactionary wing which not even the government supported, but with the moderate element in that party. They represented mainly the middle and upper bourgeoisie, while the Extreme Right consisted of the large landed proprietors. The Baltic Germans, from whom for more than a century half the official class has been recruited, voted also with the Centre, and a German, Baron Meyendorff, was elected vice-president. The Octobrist chief was M. Goutchkoff. Other leaders were M. von Anrep, formerly chief officer of public instruction at Kharkov; M. Choubinski, an authority on jurisprudence, and Count Oubaroff, a free-spoken critic of the government; and among the effective speakers on the Left were Professor Milyukov (well known in the United States, which he visited in January), and MM. Rodichev, Maklakoff, Chingarev and Adjenov. The leaders of the Moderate Right were M. Kroupiensi, conservative and cautious in temper, and Count Bobrinski, aggressive and outspoken, the friend of Finland and opposed to the curtailment of

her constitution. Under the new system of elections the Polish representation was reduced from 48 to 17, who had to contend against the strong nationalist spirit of the Duma and its hostility to non-Russian elements. Moreover, a number of representatives of the Russian administration in Polish districts had been returned. Under their leader, M. Dmowski, however, the Poles succeeded in getting the ear of the Duma and forcing it to recognize the existence of a question involving some 12,000,000 Russian subjects, as distinct from the issues of the petty nationalities with which it had at first been classed. There was even apparent in ministerial circles and among Moderates in the Duma an inclination to concede large rights of self-government to Poland, going as far as autonomy under a personal union with Russia. This was to be preceded, however, by the incorporation with Russia, proper of certain portions of Polish territory having a large Russian or Little Russian population. Such provinces were Siedlce and Lublin.

THE POLICY OF THE DUMA. Such was the composition of the Duma. It showed at first a submissive temper and during the early weeks did little but appoint committees. The reactionary spirit of the government was evident and it was necessary to proceed cautiously to avoid a rupture. On Dec. 25, 1907, the signers of the Viborg Manifesto (July 23, 1906), which called on the nation to refuse to pay taxes or recruit the army unless the Duma was assembled, were brought to trial and sentenced to three months' imprisonment and loss of political rights. They began serving their sentences in May. The government had denounced measures which it had itself at first favored. It declared the agrarian movement insurrectionary, and it had done nothing to redeem its pledges of October, 1905. The revolutionary movement had, it declared, prevented the introduction of the contemplated reforms. It was charged that more executions by court martial occurred than ever before, and that this policy continued unabated under Premier Stolypin, that the bureaucratic generals and large landowners had resumed their sway, and that the government would no longer listen to the people on agrarian questions but only to the nobility. In February, 1908, a deputation of over 300 members of the Duma visited the Czar and were received with a speech of high monarchical tone, which stated that they were to elaborate bills for restoring law and order, and that as regarded a measure for improving the land tenure of peasants, no infringement of property rights would be accepted.

The evident policy of the Duma at first was to avoid all subjects which, like the agrarian and local government questions, might lead to a rupture with the government. The measures before it were numerous, but of slight importance. Over 700 bills were submitted by the government, and of these the Duma voted more than a hundred. Much waste of time was caused by submitting these measures separately instead of in groups. Among the more important measures were the voting of the Amur railway project (noted in the following paragraph) and the voting of internal loans and the budget. In December, 1907, M. Guerbel, vice-minister of the interior, had demanded a credit of 12,000,000 rubles for fourteen governments, declaring that more would be needed in the spring. In June, 1908, in the course of a debate, the minister of finance, M. Kokovtzev, said that famine was already cer-

tain in eleven governments and that the crops were more than doubtful in twenty-one. Critics attributed the recurrence of famines nearly every ten years to the bad economic and financial policy of the government, to its encouragement of extensive farming and to the heavy taxes. The policy of railway purchase and of maintaining imperial prestige at the cost of a disastrous war had vastly increased the public debt, which was held chiefly by foreigners. It was complained that the government did nothing to remedy the evil but only to palliate it; that it left the peasant untaught, the better to fleece him (illiteracy ranging from 85 to 95 per cent., even 99 per cent. in some villages); that exports were encouraged and imports discouraged, even including agricultural implements; in short, that it either permitted or caused the conditions that it sought at intervals to alleviate. The budget which was first proposed on Dec. 12, 1907, remained for more than three months in the hands of the Budget Commission, and was then submitted piece by piece, thus preventing much general discussion, but there was some stormy debating of items in the departments of Internal Affairs and Public Instruction, and the army and navy credits provoked such severe criticism as to threaten the existence of the Duma. M. Goutchkov criticised a war ministry at the head of which were irresponsible persons, imperial grand dukes. Much sharper criticism was directed against the naval administration. The need of building up a new fleet to replace the losses incurred in the war with Japan was generally recognized, but it was no less generally admitted that a thorough reorganization in the admiralty was needed before it could be entrusted with the immense sums involved. On Feb. 20, the navy authorities laid before the National Defense Committee of the Duma a comprehensive scheme of ship construction calling for the expenditure of nearly \$1,100,000,000 by the year 1917. An alternative scheme contemplated the expenditure of \$225,000,000. The larger plan, of course, stood no chance of acceptance. The second plan met the same fate. On June 7, the Duma by 194 to 78 votes declined to vote any appropriation for construction purposes. In October, a new budget providing for the expenditure of \$44,000,000 on four battleships and minor units was again rejected. The opposition of the Duma did not, however, restrain the government, for, according to the rule, the frant of the last budget was allowed to stand in case of a disagreement. The construction of the four battleships (20,000 tons each) had been in the meantime voted by the Council of the Empire (early in July). The Foreign Office also came in for a good deal of censure. It was charged that Russian diplomatic representatives abroad were men of inferior talents and superannuated. The Russian minister at Constantinople was 74; Cassini, who, having acquitted himself with little credit at Washington before the outbreak of the Japanese war, had been transferred to Madrid, was 75; the Russian minister at Berlin was 78; the minister at Paris was about the same age. On Mar. 31, M. Isvolsky, Minister of Foreign Affairs, speaking in the Duma promised a thorough reorganization of the diplomatic service. On June 17 the Duma voted disapproval of an issue of an internal loan by the finance minister without its sanction in January. On July 11 the Duma adjourned

for its recess till Oct. 20. Though condemned by many for subservience, several instances of free and fearless criticism could be cited by its defenders. Sir Edward Grey, replying to criticism of King Edward's visit to the Czar, referred to these signs of progress. Three years before there was no representative institution in Russia. Now there was a Duma which, though not elected on a democratic franchise, voted and refused to vote money, criticised the government, and comprised different parties, some of which were radical and opposed to the government.

THE AMUR RAILWAY. In April the Duma passed the bill for the construction of the Amur railway, a great extension of the Siberian system, to follow the river as far as Khabarovsk, there uniting with the Ussuri railway and thus affording rail communication through Russian territory with Vladivostok. The estimates of its cost varied, some being as high as 500,000,000 rubles; its length was placed at 1,300 miles, and it was to be completed within four years. In addition to the obvious advantages urged on its behalf, it was said that the region it traversed was rich in copper, iron and coal, copper being worked already. On the other hand, it was criticised as wasteful expenditure at a time of scarcity. Added to the cost of double tracking the Trans-Siberian line, which was voted in June, it would with the interest on capital, heavy running expenses and cost of administration of the country traversed increase unduly the already heavy burden imposed by the government railway policy. Further objections urged by critics were that the climate was cold, the country ill suited for settlement, and the population sparse; that goods could not be brought from Russia, and that the government was planning to close the eastern ports; that Russian labor could not be employed but only Japanese and Chinese; that an army of 200,000 laborers would be required to complete it; that the Germans would profit as lenders and no one else. The bill passed its second reading in the Duma on April 16 and was subsequently carried by a large majority in the upper house. The government had begun the work before the Duma met, taking advantage of the law permitting it to legislate in case of necessity on condition of laying the measure before the chambers within two months of their next meeting.

FINLAND. On March 31 the Finnish Senate resigned, the Diet having opposed its policy toward Russia, and on April 6 the dissolution of the Diet was ordered by the Czar. The Diet's criticism of the Senate was officially declared to be the occasion of this action. The governor-general charged the Diet with having unwarrantably opposed measures which expressed the sovereign's will. Premier Stolypin explained the government's attitude toward Finland in an address to the Duma on May 18. He alleged repeated infringements of the royal prerogative and the passage of laws and ordinances affecting imperial interests without consulting the imperial authorities. He declared that there was no warrant for this course either in the treaty of cession or in the constitutional charter. He complained of the formation of army organizations, like the Red Guard, and the failure of the Finnish police to put down Russian terrorism. The constitutional privileges of Finland would, he said, be scrupulously observed, but imperial interests demanded the coördination

of the laws of Finland with those of the empire. In June an imperial order was issued declaring that all Finnish questions affecting imperial interests must be submitted henceforth to the imperial ministry for consideration and that their final decision rested with the Russian government; and that the governor-general must in future report all matters requiring the Czar's approval not only to the Finnish secretary of state but to the Russian premier. The results of the elections of July 1 were as follows: Social Democrats, 83; Old Finns, 54; Young Finns, 25; Swedish party, 25; Agrarians, 9; Christian Workmen's Union, 2. The Young Finn who had presided in the previous Diet was reelected president. There was harmony among the parties on the issue of Russian aggression and a strong majority in opposition to submitting measures in advance to the Russian ministry. The president of the Diet, in an address to the governor-general, condemned any measure that was inconsistent with the independent administration of the country as an invasion of her rights. A petition framed on Aug. 19, and signed by the members of all parties except the Socialists, declared the new ordinance giving Russian officials the power to interfere in Finnish affairs a violation of the fundamental principle of the Finnish constitution that the country should be governed solely by native authorities.

SUPPRESSING THE REVOLUTION. Reports as to the severity of the government in crushing out the revolutionary spirit varied greatly. At the close of 1907 a member of the Duma declared that 2,717 persons had been sentenced to death and 1,780 executed. In 1908 it appeared from the press that executions in May ranged from 4 to 15 daily, and during the first three months of the year from 60 to 90 per month. About 200 a day were said to be sentenced to exile. On the other hand, Premier Stolypin's assertions made it appear that comparatively few banishments and executions were taking place. The number that had been exiled by administrative process was placed by him at 14,000, which was declared by some to be an underestimate and to refer only to one class. In the course of the year the papers were forbidden to publish details of the executions, and it was difficult to obtain correct figures. At the end of the year, however, the following estimates were published: 1,953 persons sentenced to death and 782 executed; maximum for any one month, 268 death sentences in December and 119 executions; 63 newspapers suppressed. The largest number of executions took place in Warsaw (150), Kiev (150), and Ekaterinoslav (100). Statistics of the Police Department laid before a committee of the Duma showed that from Jan. 1, 1905 to Jan. 1, 1909 the military courts handed down 3,319 sentences of death of which 1,425 were executed. In addition the special drumhead courts martial from Aug. 1, 1906 to May 3, 1907, put to death 683 persons. The last figures are 461 below the press estimates. Public opinion was stirred by the arrest at the close of 1907 of the patriot Tchaikovsky, and sympathy was aroused in England and the United States, where he had lived and was well known. The charges were based on acts committed some thirty years before, which were said to be revolutionary, and he was kept in prison without trial. On Oct. 26 he was released on bail of \$25,000, which was raised by friends in the United States and England. For an account of the Jan Pouten and

Rudowitz affairs, see UNITED STATES, *Foreign Relations*. An instance was cited of the extreme severity of the government at Lodz, where the governor-general ordered the police in arresting suspects to kill them outright if there was any danger in arresting them alive, and forbidding the troops to fire warning shots, saying that the number of persons killed or wounded should agree with the number of shots fired. In November martial law still prevailed in Odessa, Poland, the Caucasus and parts of the Baltic provinces. A state of "exceptional protection" was maintained in St. Petersburg, Moscow, and many other cities. The milder form of "reinforced protection" was widespread. On Dec. 26 there was a sharp encounter between the revolutionists and the police in the suburbs of Moscow. The former repulsed both police and troops, and were reduced only by the aid of artillery. The chief of the secret police and a number of the revolutionists were killed.

FOREIGN AFFAIRS. There was much discussion of the attitude of Austria-Hungary toward the Macedonian question and in the matter of the Novi-Bazar railway (see MACEDONIA and AUSTRIA-HUNGARY), and M. Isvolsky twice appeared in the Duma to explain. The second time was on the discussion of the budget for the ministry for foreign affairs, April 17. His appearance by special authority of the Czar was taken as a sign that parliamentary institutions were consolidated, for questions of foreign policy did not concern the Duma but only the crown. The growing friendliness with Great Britain was expressed in the first part of the address, but it concluded with a reference to Germany as the nation with which friendship had never been broken. When Austria-Hungary announced the annexation of Bosnia and Herzegovina in October, M. Isvolsky, who was then in Paris, conferred with the French minister of foreign affairs and then with the British foreign office on the subject of a European conference. He afterward went to Berlin. (See BALKAN QUESTION.) In Russia, on his return (Oct. 28), public opinion had set strongly in favor of the Balkan States against Austrian aggression. The Crown Prince of Serbia and M. Pasitch, who visited Russia at that time, were cordially received (see SERBIA), and later the president of the Duma sent an expression of that body's sympathy and support to the Servian Skupshchina. In November the Russian government declared that in no circumstances would it occupy any Persian territory without the consent of Great Britain (see PERSIA). King Edward visited the Czar (June 9), the first visit of a British sovereign to St. Petersburg, and members of his suite conferred with the premier and minister of foreign affairs on the Macedonian problem and other questions of concern to the two countries. This visit was followed by that of the President of the French Republic on July 27.

OTHER EVENTS. On Feb. 20 General Stoessel was condemned for the surrender of Port Arthur before all the means of defense were exhausted, for not enforcing his authority, and for disciplinary misdemeanor, but on the recommendation of the court the Czar, in view of his heroism, commuted the sentence to ten years' imprisonment in a fortress, with loss of rank and exclusion from military service. General Fock was reprimanded, and Generals Reuss and Smirnoff were acquitted. Army reforms began in Au-

gust; the military departments were placed under the ministry of war, and the Grand Duke Nicholas was relieved of command. At a mission congress of the Orthodox Church, held at Kiev in August, freedom of worship was opposed and the acquisition of land in the western provinces by persons not of the Orthodox faith. The Holy Synod, contrary to the advice of both the procurator and the premier, ordered the faithful to take no part in the celebration of Tolstoi's eightieth birthday on Sept. 10 and issued an address to that effect, to be read in all the churches. In spite of this congratulatory articles appeared in the newspapers and in many quarters high praises were bestowed upon him. The minister of public instruction having forbidden women to attend university lectures, the rector of the University of St. Petersburg resigned in September. Student strikes broke out in the universities of St. Petersburg, Kiev, and Dorpat, and at St. Petersburg some rioting occurred. On June 24 the Senate announced its decision against the retention of Constitutional Democrats in the municipal councils (*zemstvos*) and their future admission to those bodies. The reason was that by subscribing to the Viborg manifesto the Constitutional Democrats were outlawed as a party. In September the Minister of Education ordered that university professors and instructors who were members of the Constitutional Democratic or any other "illegal" party, should be dismissed. The cholera broke out in several parts of the country in July and caused many deaths in St. Petersburg in September, but began to diminish at the end of the month. Between July 21 and Sept. 14, 3,130 deaths were reported, of which about two-fifths had occurred in the week preceding. The prevalence of drunkenness led to active efforts to control the evil. The church issued an abstinence journal and distributed nearly a million pamphlets. The Duma took measures to the same end. A commission to consider the question was in session for several months. After the reassembling of the Duma in October, the council of ministers sanctioned the introduction of a bill amending the regulations for the sale of spirits. A Russo-British chamber of commerce was organized at St. Petersburg in October, with the design of promoting commercial relations between the two countries. On Dec. 5 the Duma passed a bill for a loan of \$275,000,000, of which two-thirds were to apply to the redemption of the Treasury bonds of 1904 and the rest to the budget deficit on account of extraordinary expenditure for 1909. It was understood that the loan would be placed in Western Europe. The important measure pending at the close of the year was the Agrarian bill, of which the Duma passed on Dec. 21 the clause providing for individual ownership of peasant lands. This was in accordance with Premier Stolypin's policy of gradually doing away with the communal system and turning the ex-serfs into individual land owners and taxpayers. The Pan-Russian Woman's Congress opened on Dec. 23.

RUSSIAN ORTHODOX CHURCH. See GREEK CHURCH.

RUTHERFORD, ERNEST. A British physicist, was awarded the Nobel prize for chemistry, in December, 1908. He was born at Nelson, New Zealand, on Aug. 30, 1871, was educated at Nelson, Canterbury and Christ Church College, at the New Zealand University and at Cambridge,

and after serving as Macdonald professor of physics at McGill University, Montreal, in 1898-1907, became Langworthy professor of physics and director of the physical laboratories at the University of Manchester. He delivered the Bakerian lecture before the Royal Society in 1904, received the Rumford medal from that body in 1905 and the Bressa prize from the Turin Academy of Science in 1908. His publications include *Radio-Activity* (1904), *Radio-Active Transformations* (1906) and numerous shorter treatises on that subject and other subjects in physical sciences.

RYE. The rye crop in 1908 was practically the same as in 1907. The bulk of the crop is grown east of the Mississippi River, where it had matured before the summer drouth set in and hence was not injuriously affected as were some of the other cereal crops. The statistics of rye show that the area devoted to the crop in 1908 was 1,948,000 acres and the total production 31,851,000 bushels as compared with 1,926,000 acres and 31,506,000 bushels in 1907. In both years the average yield was 16.4 bushels per acre. The average farm price per bushel on Dec. 1, 1908, was 73.6 cents or $\frac{1}{2}$ of a cent higher than the price the year before, and the total crop value on the farm on that day for the two years was \$23,455,000 and \$21,068,000, respectively. The leading rye producing States in 1908 were the following: Michigan, with 368,000 acres and a crop of 5,704,000 bushels; Pennsylvania, with 343,000 acres and a yield of 5,660,000 bushels; Wisconsin, with 275,000 acres and a yield of 5,225,000 bushels, and New York, with 145,000 acres and a production of 2,392,000 bushels. In addition to these States, only Minnesota, Nebraska, New Jersey, Illinois and Iowa, mentioned in decreasing order of yield, produced over 1,000,000 bushels. In several of the New England and Southern States practically no rye is grown for the grain. The highest average yield in the leading States, 19 bushels per acre, was secured in Wisconsin.

The world's statistics for this crop in 1907 show a total production of 1,545,621,000 bushels, of which 1,479,851,000 were produced in Europe alone. Among the world's rye producing countries European Russia, as usual, ranked first in 1907, with 776,000,000 bushels; Germany second, with 384,150,000 bushels; Austria-Hungary third, with 129,234,000 bushels, and France fourth, with 58,578,000 bushels. The results of experiment station work in the United States show yields of 15 bushels per acre of spring rye and 25 bushels per acre of fall rye in Montana, under dry-farming methods, and yields of 35 to 40 bushels per acre for Monster and Ivanof winter rye in Kansas. Ten years' breeding work in Bohemia indicates that green and brown color in rye grains is readily transmitted and that brown grains yield larger and more productive plants.

SACKVILLE, LIONEL SACKVILLE-WEST, BARON. A British diplomatist, died on Sept. 3, 1908. He was born on July 19, 1827, and in 1847 became an attaché of the legation at Lisbon. He served in subordinate positions at Turin, Madrid, Berlin and Paris until his appointment as minister to Argentina in 1872. He became minister to Spain in 1878, and in 1881 was made minister to the United States. During the Presidential campaign of 1888 he indiscreetly answered a letter purporting to be from an English-born citizen of Califor-

nia asking his advice as to which candidate for the Presidency would best suit English interests. His answer was to the effect that the reelection of Cleveland would be satisfactory to Great Britain. The letter was at once made public and the opposition to Cleveland attempted to make political capital of it. The President immediately demanded his recall and his diplomatic connection with the United States ceased. He was not again employed by his government. He became Baron Sackville on the death of his brother, after his retirement from the diplomatic service.

SAGE FOUNDATION. See CHARITY ORGANIZATION.

SAINT ANDREW, BROTHERHOOD OF. An organization of the Protestant Episcopal Church, established for the spread of religious faith among young men. There were in 1908 some 1,500 active senior and junior chapters, with about 15,000 members. The official organ is *Saint Andrew's Cross*, published at Boston, Mass.

ST. HELENA. A solitary island in the South Atlantic. Area, 47 square miles; population (1907), 3,485. Jamestown, the capital, has 1,439 inhabitants. The population, commerce and shipping are declining. In 1907 the imports amounted to £35,000 (£32,000 from Great Britain), and the exports to £4,704 (£4,598 to Great Britain). The number of ships calling was 57. The revenue in 1907 was £7,207; the expenditure, £8,057. The governor in 1908 was Lieut.-Col. H. L. Galloway.

ST. KITTS, or ST. CHRISTOPHER ISLAND. An island of the West Indies, forming, with the islands of Nevis and Anguilla, a Presidency of the Leeward Islands (q. v.). Total area, 150 square miles; total population (1906), 49,289. The principal exports are sugar, 14,177 tons in 1907, the bulk of it going to Canada; molasses, 2,157 puncheons, over one-half to Canada; and cotton, the production of which in 1907 was 269,109 pounds on St. Kitts, 13,670 pounds on Nevis, and 59,686 pounds on Anguilla, the whole being shipped to Great Britain. In 1907-8 the imports were valued at £180,347, and the exports at £189,903. The revenue and expenditure in 1907-8 were £50,351 and £47,170 respectively, and the public debt stood at £43,646. The administrator in 1908 was T. L. Roxburgh. A hurricane on March 7 and 8, 1908, did much damage to crops and shipping.

ST. LUCIA. One of the Windward Islands (q. v.), a colony of Great Britain. Area, 233 square miles; population (1907), 54,599. Castries, the capital and one of the best ports in the West Indies, has 8,000 inhabitants; Soufrière, 2,300. The principal products are sugar, of which 5,364 tons were exported in 1907; cacao, 1,719,700 pounds exported in 1907; molasses, and some lime, rubber, and cotton. The imports in 1907 amounted to £310,309; the exports, £264,401. The trade is chiefly with Great Britain, the United States, France, and Canada. The revenue in 1907 was £67,351; expenditure, £64,841; and public debt, £153,730. The administrator in 1908 was Ph. C. Cork.

ST. PIERRE AND MIQUELON. A French colony, consisting of the islands of St. Pierre, Ile-aux-Chiens, and Miquelon, off the south coast of Newfoundland. Area, 93 square miles; population (1902), 6,482, but numbering at present about 4,000, a large number having emigrated to Canada. The capital is St. Pierre.

The islands are barren. Cod-fishing, the principal industry, has been disastrously affected by the action of Newfoundland, which cut off the supply of bait. In 1906 there were engaged in deep-sea fishing 105 boats with 1,886 men. In 1907 imports and exports amounted to 5,031,936 and 7,255,930 francs respectively, the trade with France being represented by 2,457,000 and 6,378,000 francs respectively. Since May, 1906, the colony has been under an administrator, assisted by a consultative council. The weight of taxation is excessive, the local budget for 1907 having balanced at 484,805 francs. The French subvention in 1907 was fixed at 225,566 francs. In Nov., 1908, there were disturbances, caused by the suppression by the government of religious instruction in the public schools. The judge who imposed a fine upon recalcitrant school teachers was mobbed, and the demand was raised that allegiance to France be thrown off and annexation to the United States sought. The agitation subsided when it was announced that a new administrator, Pierre Didelot, was appointed on Nov. 20, and that he would sail immediately for St. Pierre with special instructions on the school question.

ST. VINCENT. An island of the West Indies, forming together with the smaller Grenadines a division of the Windward Islands (q. v.). Total area, 140 square miles; total population (1908), 51,779, mostly negroes and mulattoes. Kingston, the capital, had 4,547 inhabitants in 1891. The principal products are sugar, molasses, rum, coffee, cacao, cassava, arrowroot, and spices. Fine sea-island cotton is grown, of which 427,819 pounds were exported in 1907-8. The imports in 1907-8 amounted to £96,554; the exports, £94,265. The revenue and expenditure in the same year were £27,543 and £23,508 respectively. The administrator in 1908 was E. J. Cameron.

SAKHALIN (KARAFUTO). An island off the east coast of Siberia. The southern half of the island, to the south of 50 degrees N., was surrendered by Russia to Japan in 1905. A commission of 800 Russians and 800 Japanese commenced the work of delimitation in June, 1906, and concluded it in the fall of 1907. The boundary is marked by a lane cut through the forest from east to west, 82 miles long and 12 miles wide. The exchange of documents relating to the settlement of boundaries was effected in Vladivostok on April 10, 1908.

NORTHERN or RUSSIAN SAKHALIN has an area of about 16,370 square miles, and about 12,250 inhabitants. The principal settlements are Alexandrovsk, Nikolaievsk, and Dui. Convicts are no longer sent to the island. Almost the entire surface is covered with forests, chiefly coniferous. The rivers have an abundance of fish, the principal food of the natives. Coal of an inferior grade exists in enormous quantities, and some coal mines are worked near Dui, on the west coast. Large naphtha wells were discovered in 1907 on the east coast, one day's march to the north of Nikolaievsk. The oil proved on analysis to be of fine quality. It contains very little paraffin, but also very little benzene, the valuable by-product in petroleum refining. A company of Russians, Germans and Chinese was organized for the exploitation of the wells. Refining was to begin in the spring of 1909. One-third of the employees were to be Russians, and German machinery was to be exclusively used. The ad-

ministration is in the hands of a military governor.

SOUTHERN or JAPANESE SAKHALIN has an area of about 12,489 square miles, and (1907) 20,467 inhabitants. In Feb., 1908, the number of Japanese actually residing on the island was officially given at 30,000. The Russians have mostly emigrated. The principal settlements are Korsakov, Vladimirovka, Manka, and Paroantomali. The fisheries are the most important source of wealth, chiefly herring, salmon and cod. In 1907 there were 3,460 vessels engaged in the fisheries, which yielded a value of \$2,847,000. The forests are extensive. The investigation of 1906-7 showed a total of 12,461,790,000 feet of evergreen and 21,500,000 feet of broadleaf suitable for export. In 1908 the best method of cutting was being investigated. The land survey, in progress since 1905, has now been completed, and 10,913 divisions of 3,000 tsubo (1 tsubo=3,9538 sq. yds.) each were made. Each settler receives 22,500 tsubo, besides advances of seeds and domestic animals. Cereals and tubers thrive well. The crops of 1906-7 were poor, due to bad weather and a late distribution of seed. Since 1906 an experimental station has been established from which seeds and animals are distributed and at which cattle, horses, hogs, sheep, and goats are bred. In 1907 there were 1,292 cattle, 1,492 horses, and 989 hogs. The mineral wealth has not yet been sufficiently investigated, but considerable deposits of petroleum have been found, besides coal, gold dust, and iron sulphate. A light railway of 30 miles connecting Vladimirovka, the seat of government, with Korsakov, was completed in 1906. The budget for 1908-9 was fixed at 1,677,866 yen (1 yen=49.8 cents), about 1,000,000 yen annually being contributed by Japan.

SALTON SEA. See METEOROLOGY.

SALVADOR. A republic of Central America. Area, about 8,170 square miles; population (1906) about 235,000 pure Indians, and the remainder of mixed blood. San Salvador, the capital, had 59,136 inhabitants in 1905. The other larger towns, with their populations in 1901, are: Santa Ana, 48,120; San Miguel, 24,768; Nueva San Salvador, 18,770; San Vicente, 17,832; Sonsonate, 17,016.

EDUCATION. In 1907 there were in the public schools 34,752 pupils, with an average attendance of 24,713. The expenditure for primary instruction in 1908 was 645,766 silver pesos (1 peso=39.3 cents). There are several private schools, some exclusively primary, and others both primary and secondary. There are 22 higher schools, including 3 normal and 3 technical schools, and a national university. The normal schools are situated at San Salvador, Santa Ana and San Miguel. A school of agriculture was opened in 1907 at San Salvador.

PRODUCTION, COMMERCE, ETC. The chief agricultural product is coffee, covering about 125,000 acres. Its production was estimated at 49,530,363 pounds in 1906, against 74,295,544 pounds in 1905. During the fiscal year 1907 the export of coffee amounted to about 57,000,000 pounds, valued at 10,745,173 pesos. The 1907 crop was small, but better prices than usual were obtained. The 1908 crop was expected to reach at least 70,000,000 pounds. Maize and rice also suffered in 1906, owing to storms and floods. Other agricultural products are cacao, sugar cane, tobacco, pineapples, indigo, rubber, and

medicinal plants. Peruvian balsam is produced in a small zone between the ports of La Libertad and Acajutla, and is a characteristic product of the country. Gold and silver are practically the only mineral products, though a little copper is also produced. There are 62 plants for the manufacture of alcohol under government supervision. The increasing importance of the weaving industry is indicated by the increase in the imports of cotton yarn. In 1906 imports were valued at 4,163,689 gold pesos and exports at 6,527,422 gold pesos. The chief imports are cottons, silks, drugs, flour and hardware. The principal exports in 1906 were, in silver pesos: Coffee, 11,626,296; indigo, 413,620; balsam, 181,851; sugar, 340,026; gold, 2,486,512; other minerals, 885,983. According to United States returns, the imports from Salvador during the fiscal year 1907-8 amounted to \$981,751, and the exports to Salvador \$1,357,297. The total length of railway is over 100 miles. In June, 1908, a concession was granted for the construction of a railway from La Union, on the Gulf of Fonseca, to a point on the Guatemalan frontier where it would connect with the recently completed Guatemalan section of the Pan-American line (see GUATEMALA). In 1907 there were 2,350 miles of telegraph wire.

GOVERNMENT, FINANCE, ETC. The President of the republic—in 1908, General Fernando Figueroa—is popularly elected for a term of four years. The unicameral Congress consists of 3 members from each of the 14 departments, elected annually by universal suffrage. The governors of departments are appointed by the President; municipal officers are elective. In 1907 the revenue and expenditure amounted to 7,110,431 and 7,058,705 silver pesos respectively. The internal debt stood on March 31, 1907, at 2,787,383 gold pesos, and 1,259,363 silver pesos, besides treasury notes amounting to 3,397,776 silver pesos. The external debt amounted to £726,429 in 1899, when it was taken over by the Salvador Railway Company, which receives from the government a subsidy of £24,000 annually for 18 years from 1899. In 1908 a 6 per cent. loan of £1,000,000 was obtained from a London company under a special customs security. The proceeds of the loan were 9,000,000 pesos. The army numbers 3,000 men; the militia 18,000. There is no navy.

HISTORY. In a decree issued on Nov. 20, 1907, President Figueroa granted amnesty to all political offenders, suspended martial law, declared the constitution again in force, and promised the people a fair administration of the government. In his message of Feb. 20, 1908, President Figueroa referred to the Amapala conference of Nov. 6, 1907, between the presidents of Salvador, Honduras, and Nicaragua, and to the Central American peace conference held at Washington toward the end of 1907, as having laid the basis for an era of peace and good will among the republics of Central America. In February Congress approved a loan of \$5,000,000 to be raised in England. In March 14, 1908, the representatives of Salvador and the United States signed at San Salvador a convention determining the status of naturalized citizens of either republic who renew their residence in the country of their origin. This convention was ratified by Salvador on July 20, 1908, and was only awaiting the action of the American Congress to become binding. In April,

1908, a commercial treaty was concluded with Germany. The two nations agreed to accord to each other the most favored nation treatment in commercial, maritime, and consular matters. It was, however, stipulated that any favor which Salvador had already granted or might hereafter grant to any or all of the other Central American republics may not be claimed by Germany unless such favor be extended to some other country. The treaty was to become effective upon exchange of ratifications and to remain in force for ten years, unless denounced one year before the expiration of that period. If not so denounced, it shall continue in force thereafter until one year after denouncement. A decree of May 22, 1908, announced the adherence of Salvador to the Universal Postal Union, established at Rome on May 26, 1906. On July 13, 1908, Salvador ratified all the conventions of the third Pan-American Conference, held at Rio de Janeiro. Early in Dec., 1908, the government promptly crushed a revolt which started in the department of Sonsonate.

SALVATION ARMY. A religious body founded on military principles by William Booth in 1878, although as a Christian mission it had existed in London since 1865. The corps and outposts of the army in 1908 numbered 850. The indoor attendance at its meetings is 8,292,060, and the open air attendance 1,493,865. The local officers and bandsmen numbered 5,539. There were 78,768 junior companies, with a company attendance of 1,757,692. The American relief institutions for the poor include 84 industrial homes, to which in 1908 10,330 men were admitted; 75 workmen's hotels with shelter accommodations for 8,086; 42 homes, accommodating 265; 21 slum posts, by which 8,716 sick cases and 33,979 families were visited during year; 24 rescue homes, to which 1,755 persons were admitted; a bureau for missing friends in which 277 persons were found during the year, and three colonies, embracing 2,569 acres of land, in which were 399 persons. The army distributes annually about 300,000 Christmas dinners and about 10,000 Thanksgiving dinners. It afforded temporary relief to persons outside of industrial homes and hotel numbering 29,026 during the year. Outings were given to 6,311 mothers and 25,029 children. Commander Miss Evangeline Booth is in charge of the work in the United States with Colonel William Peart as chief secretary.

SAMOA OR SAMOAN ISLANDS. A group of islands in the Pacific Ocean belonging partly to the United States and partly to Germany. Following a volcanic eruption, which began on the island of Savaii on May 10, a huge stream of lava, spreading almost continuously over a width of eight miles, flowed down to the sea, destroying many native houses in the way. It was the largest flow of lava in the history of the island. See GERMAN SAMOA and TUTUILA.

SAMOS. An island off the west coast of Asia Minor. Area, 181 square miles; population (1902), 53,424, nearly all Greek Christians. About 15,000 natives live on the coast of Asia Minor. Foreigners numbered 1,449, of whom 1,325 were Greek. Vathy, the capital, has 15,000 inhabitants; other towns are Carlovassi, Tigani and Chora. There are about 30 villages, varying in size from 50 to 2,000 inhabitants.

Wine is the chief source of wealth. About 7,420 acres are under vines, the annual output being 1,600,000 gallons. Muscatel grapes are a specialty, and two-thirds of the wine is exported to France and Germany for mixing purposes. The highest grade of cigarette tobacco is grown, the output in 1908 being 846,000 pounds. The annual export of cigarettes is 50,000,000. Cigarette machines recently introduced have thrown a large number out of employment, and many are planning to leave the island. The carob-tree, the fruit of which is used as a fodder as well as for mixing with chewing tobacco, grows wild; the annual export of carob-beans is 3,400,000 pounds. The olive oil production is 420,000 pounds annually, nearly the whole of this being used for food and soap. In 1907 imports amounted to 18,850,600 piasters (1 piaster=4.4 cents), and exports, 18,132,720 (wine 8,900,000; cigarettes 4,300,000). The ports were visited in 1907 by 4,580 vessels of 403,678 tons. The island is a dependency of Turkey, under the protection of Great Britain, France, and Russia. The prince is a Greek Christian appointed by the Sultan. There is an assembly of 40 members elected for two years, and a senate the members of which are elected by the assembly. The revenue and expenditure for 1907 were estimated at 3,479,800 and 3,427,340 piasters respectively. The public debt amounts to 2,570,500 piasters. The annual tribute of 300,000 piasters is relinquished by the Sultan to the island for the construction and repair of roads, of which there is great need.

In May, 1908, there were disturbances at Vathy, due to friction between the Greek nationalists and Prince Kopassi Effendi who refused to summon the assembly and was supported in his course by the Porte. The rising was suppressed and severe sentences were passed on those accused of participating in it. Nineteen of the accused who failed to make an appearance having been condemned to death. During the disturbances, Turkish soldiers did some looting and committed acts of desecration in the Church of St. Charalambé. Acting on the advice of France and Great Britain, the Turkish government gave assurances that it did not intend to modify the status of the island.

SAMUELS, SAMUEL. An American sea captain and yachtsman, died on May 18, 1908. He was born at Philadelphia on March 14, 1823, and when eleven years old ran away from home and shipped as a cook on a coasting schooner. He subsequently visited practically every part of the world in his voyages and had various interesting experiences, many of which are described in his *From the Foremast to the Cabin* and other writings. In 1886, as skipper of the *Dreadnaught*, the best known of American clippers, he made the voyage from Sandy Hook to Queenstown, a distance of nearly 3,000 miles, in the record time of nine days and seventeen hours. He served at various times as captain of the United States steamship *John Rice*, as general superintendent of the quartermaster's department in New York City, as commander of the *McClellan* at the capture of Fort Fisher in 1865, as general superintendent of the Pacific Mail Steamship Company, as organizer of the United States Steam Heating and Power Company, and as president of the Marine Journal Company. In 1866, although he had retired from active sea service, he sailed the yacht *Henrietta*, owned by James Gordon Bennett,

across the Atlantic in thirteen days and twenty-two hours, easily defeating the other yachts in the contest, those of Pierre Lorillard and George Osgood. Afterward he sailed in other yacht races, his last one being a triangular race from Newport to New York over the New York Yacht Club course, which he won with his own yacht, the *Dreadnaught*.

SANITATION. Reorganizations and extensions of State sanitary activities and continued and stronger agitation for a national board of health for the United States were notable features of 1908. The reorganized and enlarged State departments of health of New York and Pennsylvania were very active in their campaigns against stream pollution and for purer water supplies. The reorganized board of health of Virginia promised to set a much-needed example of efficient State health protective work in the South. The old State board of health and State sewerage commission of New Jersey were consolidated in 1908 into a new State board of health, the engineer-member of each of the old bodies being appointed to the new board. This board, like those of Massachusetts, New York, Pennsylvania, Ohio and Kansas, passes on and can refuse to approve plans for sewage disposal. Some of these boards also have power over plans for new public water supplies, and some can demand that sewage from existing sewerage systems shall be purified before it is discharged into any stream or lake. The Ohio legislature in 1908 took the lead of the States of the Union in giving its State board of health supervisory control over water and sewage purification plants. Hereafter, that board can order changes in the methods of operating such plants, in case such changes are deemed necessary to protect the public health. This was a great step forward, for heretofore the few States that have required the approval of plans for water and sewage purification, as a condition precedent to construction, made no provision for insuring that the plans so approved should be followed during construction, much less that the plants when built should be properly operated. The Ohio board also entered upon a study of garbage disposal methods and costs, which was an almost unworked field for such boards.

Further investigations at Washington, D. C., confirm the opinions previously expressed to the effect that other causes than the public water supply were responsible for the excessive amount of typhoid fever which prevailed at Washington for years before and has continued since the building of a water filtration plant for the District of Columbia. In particular there may be mentioned a notable study of typhoid fever at Richmond, Va., with comparisons with Washington and a review of certain conditions effecting typhoid elsewhere in the South. This paper, by Drs. E. C. Levy and A. W. Freeman, of Richmond, Va., was read before the American Public Health Association in 1908, and has been reprinted for private circulation by the authors. The paper showed that the typhoid curves of Richmond and Washington had risen and fallen together for a quarter century past, notwithstanding the fact that the Richmond water supply had been unchanged or changed only for the worse, while that of Washington had been improved. The authors hold, in common with other recent investigations, that the long warm summers of the South favor proso-

demic or residual typhoid—i. e., that due to other causes than water and milk, such as transmission from privies to and through food by flies, transmission by personal contact, etc. A unique study of typhoid fever was made in a half dozen wards of Pittsburgh, Pa., late in 1907 and reported in 1908, under the auspices of *Charities and the Commons*, with the aid of funds from the Sage Foundation. It consisted of a house-to-house canvass of typhoid cases which had been reported to the health department during the first half of 1907. This typhoid survey, as it was aptly called, was both sanitary and economic in character. The city wards studied are occupied by steel and other workers. The economic effect of illness or death from typhoid on the families involved was investigated and reported. Extracts from the report were published in *Engineering News* for March 5, 1908, from which the concluding words are quoted, as follows:

"There were 929 typhoid cases, in 844 families, in the six wards, but when the study was made only 338 of the families, numbering 2,045 individuals, could be found. In these 338 families there were, during the year ending June 30, 1907, 448 cases of typhoid, with 26 deaths. Nearly half the cases (or 202) were children, of whom 164 were in school. The aggregate actual money loss caused by the 448 typhoid cases investigated was \$57,253, or about \$130 per case. It will be noted that these figures make no allowance whatever for the economic loss to the community caused by the 26 deaths. We may add, that on the same basis of average cost, the 5,637 cases of typhoid fever in Pittsburgh (including Allegheny) during the year involved was about \$725,000."

Since the date covered by the typhoid survey a modern water purification plant has been put in operation in Pittsburgh and typhoid fever has materially decreased. For further information on sanitation see GARBAGE, SEWAGE PURIFICATION, STREET CLEANING, and WATER PURIFICATION.

SANKEY, IRA DAVID. An American evangelist and hymn-writer, died on Aug. 13, 1908. He was born in Edinburgh, Pa., on Aug. 28, 1840. He joined the Methodist Church at the age of 15, and, while serving in the Twelfth Pennsylvania Volunteers during the Civil War, organized and conducted religious services among his fellow soldiers. After the war he became prominent in Y. M. C. A. work; and at the Y. M. C. A. convention of 1870, held in Indianapolis, he first met Dwight L. Moody, with whom he was to be associated in evangelistic work for the next 29 years. From 1870 on, Moody and Sankey held revival meetings in nearly every large city in the United States; in 1873-75 they toured through England. At these meetings Moody usually preached, while Sankey took charge of the singing. After Moody's death, in 1899, Sankey conducted a series of meetings alone, and delivered lectures upon Moody's work. In 1902 Sankey left the Methodist Church to become a Presbyterian. He wrote an immense number of hymns, both words and music, and compiled numerous hymn books. Among these are: *Sacred Songs and Solos* (1873); *Gospel Hymns* (1875); *Winnowed Songs for Sunday Schools* (1890); and *Young People's Songs of Praise* (1902). Of the *Sacred Songs and Solos* alone, more than 50,000,000 copies have been sold. Three of his

most famous hymns were "Pull for the Shore, Sailor," "Throw Out the Life Line," and "The Ninety and Nine." Although very mediocre, both as to words and music, his hymns were tremendously effective at revival meetings. Sankey became totally blind in 1903. In 1906 he published *My Life and Sacred Songs*.

SANTO DOMINGO, or DOMINICAN REPUBLIC.

A republic occupying the larger eastern half of the island of Haiti, West Indies. Area, about 18,700 square miles; population, about 416,000, mostly of mixed European and African blood. The prevailing language is Spanish. The principal cities, with their estimated populations, are: Santo Domingo, the capital, 20,000; Santiago, 12,000; Puerto Plata, 5,000; Macoris, 5,000. There are some 300 schools with about 10,000 pupils. On Nov. 19, 1908, the President decreed the establishment on Dec. 1 of an academy of drawing, painting, and sculpture, for which \$3,000 had been appropriated. Instruction was to be free, with day and night classes, and a graded course of four years.

PRODUCTION. The mineral resources include gold, copper, iron in immense quantities, extensive coal deposits, including the best anthracite, silver, platinum, quicksilver, tin, salt, sulphur and alum. The petroleum belt measures over 190 square miles; its exploitation has been begun by the West Indian Petroleum Mining Company, an American corporation. On the high plateaus of the central mountain range there are fully 3,000,000 acres of excellent yellow pine and 6,000,000 acres of hardwoods. Sugar is the most important agricultural product; in 1907 its export amounted to 54,100 tons. The tobacco crop of 1907 was disappointing both as to quantity (26,400,000 pounds) and quality; the export of tobacco in 1907 was 21,802,982 pounds. The production of cacao is rapidly extending; its export in 1907 was 22,384,082 pounds. The export of coffee in 1907 was 3,376,970 pounds; of bananas, 640,000 bunches. The cultivation of rice and cotton has been begun, and cattle-raising and dairying are receiving increased attention.

FOREIGN COMMERCE. In 1907 the total imports amounted to \$5,156,121, against \$4,281,337 in 1906, and the total exports \$7,638,536, against \$6,543,872 in 1906. The principal imports in 1907 were: Cotton manufactures, \$1,218,679; iron and steel and their manufactures, \$537,707; flour, \$325,786; rice, \$472,145; leather and manufactures thereof, \$139,133; oils, \$268,197; provisions, \$305,581; fish and fish products, \$162,234; wood and its manufactures, \$159,087. The values of the principal exports in 1907 were: Cacao, \$2,988,453; raw sugar, \$2,099,679; leaf tobacco, \$1,341,233; bananas, \$319,500; coffee, \$252,390. Other exports were honey, sisal, wax, woods, etc. The trade by countries in 1907 is shown in the following:

From and to	Imports	Exports
United States.....	\$2,863,700	\$3,329,018
Germany.....	953,963	2,759,624
Great Britain.....	761,787	330,787
France.....	250,408	1,078,308
Spain.....	123,448	4,320
Italy.....	103,903	11,617
All other countries.....	98,903	125,853

COMMUNICATIONS. The number of vessels entered in the foreign trade in 1907 was 772, of

840,256 tons; of those cleared, 759, of 831,053 tons. In the coastwise traffic 3,840 ships, of 76,444 tons, entered, and 3,954 ships, of 49,274 tons, cleared. The principal ports are Puerto Plata, Sanchez, Santo Domingo, Macoris, Samana, Monte Cristi, and Azua. There are about 130 miles of railway and over 430 miles of telegraph. In Feb., 1908, the government took over the Central Dominican Railway from the Dominican Improvement Company. The road is managed by a Scotch engineer, and is being regraded and furnished with new rolling stock from the United States. The ties are made from a native wood.

FINANCE, ETC. In 1907 the total revenue amounted to \$3,964,632, of which \$3,314,119 was from customs; the expenditure was \$2,355,531. With the balance from former years, there was at the beginning of 1908 a total balance of \$4,217,178, of which \$3,932,577 had been deposited with the National City Bank of New York in trust for the national creditors. This latter sum, it has been reported, has now been distributed among the creditors. The budget for 1908-9 estimated the total revenue and expenditure at \$3,984,300. The sum of \$1,808,708 is assigned to the Department of Treasury and Commerce; \$76,800 to the construction of railways; \$75,000 to irrigation works in Monte Cristi province, and other sums to building of roads, construction and repair of lighthouses, etc. By a Presidential decree of March 31, 1905, an American was appointed receiver-general of customs, with authority to deposit 55 per cent. of the net customs revenue in trust for the national creditors. The face value of the debt of the republic was originally about \$30,000,000, but through the efforts of agents of the United States government, was scaled down to about \$17,000,000. In the early part of 1908 the Dominican government entered into three agreements for the adjustment of the national debt. On Jan. 27, 1908, an agreement was made with Messrs. Kuhn, Loeb & Co., of New York, for the issue of \$20,000,000 of bonds, at 5 per cent., guaranteed by the customs revenue. On Jan. 24, 1908, the Samana and Santiago Railroad Company agreed to abandon its right, dating from 1887, to collect for a period of thirty-five years 7 per cent. of the import duties at the custom house of Sanchez, in exchange for \$195,000 of bonds at 5 per cent. On Feb. 13, 1908, an agreement was made with various companies for the surrender to the government of old bonds to the amount of £830,654, of the Dominican Central Railroad, and of all rights and interests in the National Bank of Santo Domingo, for the sum of \$4,312,243.

The regular army consists of an artillery corps numbering 650 men. The rural guard contains about 500 men. The navy consisted at the beginning of 1908 of one unprotected small cruiser, of 1,000 tons, and two gunboats, of 722 tons. On July 1, 1908, Ramon Caceres was inaugurated President of the republic to succeed himself.

HISTORY. The new constitution, submitted to Congress on Dec. 18, 1907, went into effect on April 2, 1908. It fixes the term of office of the President at six years and abolishes the vice-presidency. On April 3, 1908, Congress passed a sanitary law, which was promulgated by President Caceres on June 6, and was to go into effect on Jan. 1, 1909. The law prescribes

the creation of a central, or national, sanitary board and provincial and municipal boards, and makes provision for the establishment of sanitary stations in the maritime ports of the republic. On June 15, 1908, the Dominican republic ratified the convention on literary and artistic copyrights, adopted by the second Pan-American Congress, at Mexico City, in 1902. On the same date it also ratified the convention on international law, adopted by the third Pan-American Congress at Rio de Janeiro in 1906.

SARASATE Y NAVASCUES, PABLO MARTIN MELITON DE. A Spanish violinist, died on Sept. 20, 1908. He was born in Pompeluna, Spain, on March 10, 1844. After receiving some preliminary instruction from his father, who was bandmaster in his native town, he went to Madrid, about 1851, and studied the violin under Rodriguez. In 1854, when only 10 years old, he played at the Spanish court, and so impressed Queen Isabella by his remarkable talent that she agreed to pay for his music lessons for a term of three years. Accordingly, in 1856, he entered the Paris *Conservatoire*, where he studied the violin under Alard, and harmony and composition under Reber. His first public appearance was made at the Crystal Palace, London, in 1861. His life-long friendship with Joachim also dates from this year. From 1861 until his death, his career was one of unbroken and steadily increasing success. He played in nearly every country in the civilized world, and appeared at every court in Europe, receiving countless orders and decorations. He visited America twice; in 1869, when, together with Christine Nilsson, he appeared in New York, Boston and Philadelphia; and in 1899, when he toured the country with Eugen d'Albert, the pianist. As a player, he ranked among the greatest virtuosi of the nineteenth century. His technic was flawless, and he possessed a tone of wonderful delicacy and perfection of intonation. Among a number of compositions written especially for him are Bruch's *Second Concerto* and Lalo's *Symphonie Espagnole*. Sarasate's playing was, however, expressive rather than interpretative. He found it difficult to subordinate his own personality to that of the composer, and was at his best when playing his own compositions. These last are of great brilliancy, intensely Spanish in character, and mostly take the form of dances or fantasies.

SARAWAK. A British protectorate on the west coast of the island of Borneo. Area, 39,855 square miles; population, about 500,000. Kuching, the capital, is connected by steamer with Singapore. Gold, silver, antimony, quick-silver, coal, and diamonds are found. Sago, rubber, wax, rice, tobacco, gambier, and pepper are among its products. The imports and exports in 1907 amounted to 5,172,004 and 6,717,419 dollars respectively, the export of gold amounting to 1,513,800 dollars. The Rajah is Sir Charles Johnson Brooke. The revenue in 1907 was 1,441,194 dollars; the expenditures, 1,359,273 dollars.

SARDOU, VICTORIEN. A French dramatist, died on Nov. 8, 1908. He was born in Paris on Sept. 7, 1831, studied medicine, taught school for a time, and finally became a writer for newspapers. His first play, produced in 1854, was an utter failure. In 1860, however, Mlle. Déjazet, a Parisian actress-manager, produced

his *Pattes de Mouches* (well known as "A Scrap of Paper"), which was an immediate success. His subsequent plays numbered nearly sixty, and were almost all of them successful, although of very unequal merit. Whatever rank may be accorded Sardou as a creative dramatist, there is no question of his commanding abilities, his wide learning, his notably keen power of observation, his gifts of humor and satire, and his extraordinary capacity as a stage manager. In the mechanical side of play-building he has probably never been excelled. He was quick to recognize the popular taste and to gratify it. He had no great concern for elevating or directing the dramatic taste of his audiences. Sardou's most notable successes were in those plays which he wrote for the use of Sarah Bernhardt and other star performers. Among these were *Fédora*, *Théodora*, *La Tosca*, and *Cléopâtre*. These he wrote for Madame Bernhardt. For Coquelin he wrote *Thermidor*; for Réjane, *Mme. Sans-Gêne*, and for Henry Irving, *Robespierre* and *Dante*. One of the cleverest of his plays was *Divorçons*, which was very successful in the translated form in the United States. Many of his other plays were successful in English. He was elected to the French Academy in 1877. The best of his plays, in addition to those named above, are: *Piccolino* (1861); *Seraphine* (1869), and *La Sorcière* (1904).

SARGENT, FRANK PIERCE. An American labor leader, and commissioner-general of immigration, died on Sept. 4, 1908. He was born at East Orange, Vt., on Nov. 18, 1854. He was made grand master of the Brotherhood of Locomotive Engineers in 1885. He declined the appointment as member of the Industrial Commission, offered him by President McKinley in 1898, and also that of director of the Bureau of Engraving and Printing, which was offered him in 1900, because he did not wish to sever his connection with the Brotherhood. In 1902, however, he was appointed commissioner-general of immigration by President Roosevelt, and accepted.

SASKATCHEWAN. A province of Canada. Area, 250,650 square miles. Population in 1901, 91,460; in 1906, 257,763. Regina, the capital, had 6,169 inhabitants in 1906. For details respecting population, education, production, etc., see CANADA. The provincial government consists of a lieutenant-governor, appointed by the governor-general of Canada and acting through an executive council, or responsible ministry, and a unicameral legislative assembly of 25 elected members. The present lieutenant-governor is Amedée Emmanuel Forget, appointed Sept. 1, 1905. The present premier is Walter Scott.

HISTORY. The history of the province in 1908 was unusually interesting and exciting, because of the importance of the legislative session which began in April, and of the provincial elections which followed in midsummer. During the session of the legislature laws were passed establishing a provincial university, increasing representation in the legislature, remodeling the municipal organization, consolidating the laws of the province, establishing a government telephone system, and regulating liquor licenses. The last-named measure was supported by both parties, and its most outstanding feature was the local option provision according to which the privilege of deciding whether or not liquor

licenses shall be issued in a local district is limited to cities, towns, and rural municipalities, the village being merged in the rural municipality. After the legislature was dissolved, the political campaign became unusually warm, with much recrimination and charges and counter charges of fraud and corruption. The Liberal premier, Walter Scott, had a good record of three years' legislation, while F. W. Haseltain, leader of the Conservative opposition, advocated restoration of the public lands to the province (on the formation of Saskatchewan in 1905 the federal government retained control of these lands, granting an additional subsidy in lieu thereof), and made charges of extravagance and corruption. Premier Scott's government was sustained by a majority of thirteen.

SATTERLEE, HENRY YATES. First Protestant Episcopal bishop of Washington (D. C.), died on Feb. 22, 1908. He was born in New York city on Jan. 11, 1843. He graduated at Columbia in 1863, and at the General Theological Seminary in 1866, and was ordained to the Protestant Episcopal priesthood in 1867. The same year he was called to be assistant rector of Zion Church, at Wappinger's Falls, N. Y., where he became rector in 1875. In 1882 he was called to Calvary Church, New York City. Here he remained until 1896, taking an active part in mission work, especially among the East Side poor. He declined the post of coadjutor bishop of Ohio in 1887, and of bishop of Michigan in 1889. In 1896, however, he left his parish to become bishop of Washington. He wrote several books, among which are *A Creedless Gospel and the Gospel Creed* (1894); and *The Building of a Cathedral* (1902).

SATTERLEE, WALTER. An American painter and illustrator, died on May 28, 1908. He was born in Brooklyn in 1844, graduated at Columbia in 1863, and studied art in the National Academy of Design, and under Edwin White, and in 1878-79, under Leon Bonnat, in Paris. He was awarded the Clark prize in 1886 at the National Academy of Design, of which he was made an associate in 1879. He frequently painted colonial subjects. Some of his better known pictures are "The Runaways," "The Old Garden," "The Feast of Flora," "An Old Time Coquette," and "Old Ballads."

SATURN. See ASTRONOMY.

SAVINGS BANKS. The number of savings banks in the United States in 1908, according to the report of the Comptroller of the Currency, was 1,453, as compared with 1,415 in 1907. Since depositors in savings banks are for the most part working people, it is of interest to find that the total number of depositors was 8,705,848, or almost one for every ten inhabitants, and that the aggregate savings deposits were \$3,660,553,945, an average of \$420.47 for each depositor. There are two classes of savings banks in the United States, mutual and stock. Mutual savings banks numbered 676, all found in the New England and Middle States, except 1 in West Virginia, 3 in Ohio, 5 in Indiana, 2 in Wisconsin and 14 in Minnesota. These mutual banks had 7,137,481 depositors, and an aggregate of \$3,065,686,012, an average of \$429.52 for each account. These deposits represented nearly 24 per cent. of the total individual deposits in all banks of the United States. Moreover, the aggregate resources of mutual savings banks in New England

represented more than half the aggregate banking resources of that section. The average deposit account was highest in Rhode Island, \$547.79; next highest in Ohio, \$541.10, and third highest in New York, \$508.78. The average rate of interest on deposits was 3.7 per cent. in New England, and 3.49 per cent. in the Middle Atlantic States. The stock savings banks in 1908 numbered 777, located in the District of Columbia, North Carolina, South Carolina, Florida, Iowa, Nebraska, Colorado and California. They had 950,585 depositors, credited with \$413,506,879, an average of \$435. They paid an average interest of 3.53 per cent. While more numerous than mutual savings banks, the stock savings banks held only one-eighth of the total savings bank assets. Moreover, while the former showed slight gains in assets and deposits as compared with their condition in 1907, the latter showed a decided decrease in both items. This decrease was, however, almost entirely due to the decrease in the assets and deposits of the stock savings bank of California. Taking all savings banks together, the statistics for 1908 as compared with those for 1907 show an increase of 117,037 in the number of depositors, a decrease of

\$29,525,000 in aggregate deposits (due to decline in California), and a decrease in the average deposit from \$429.64 to \$420.47. The table on page 641 from the report of the Comptroller of the Currency gives the data for all savings banks by States for 1908. The correlation of industrialism and savings banks is shown by the preëminence of such highly industrial States as New York, Massachusetts, Connecticut, Pennsylvania and Illinois in the statistics of this table.

SCHOOL savings banks for the encouragement of thrift among school children have been started in many cities by persons interested in the idea. The method followed is for pupils to bring their savings to their teachers, who in turn deliver them to some person keeping the accounts for the whole school. The money is deposited at interest in local banks. By Jan. 1, 1908, such a system had been introduced in 1,102 schools in 101 cities in the United States and Canada. The depositors numbered 178,817 and the deposits aggregated \$759,646.

The following table from the comptroller's report was compiled from official sources. The table includes all savings banks, private, municipal and government, including postal:

DEPOSITORS AND AMOUNT OF DEPOSITS IN SAVINGS BANKS (INCLUDING POSTAL SAVINGS BANKS) OF PRINCIPAL COUNTRIES.

Countries	Population	Date of reports	Number of depositors	Deposits	Average deposit account	Av. dep. per inhab.
Austria	27,202,000	Dec. 31, 1905-6	5,685,547	\$1,086,797,635	\$191.15	\$39.95
Belgium	7,239,000	Dec. 31, 1906	2,419,740	156,733,934	64.77	21.65
Bulgaria	4,028,000	Dec. 31, 1904	1,124,007	2,723,782	21.95	.68
Chile	3,400,000	June 30, 1908	198,419	22,876,142	115.29	6.73
Denmark	2,600,000	Mar. 31, 1908	1,852,490	223,628,544	165.35	86.01
Egypt	11,206,000	Dec. 31, 1907	74,179	1,928,749	26.00	.17
France	39,280,000	Dec. 31, 1906	12,462,900	921,150,000	73.91	23.46
Algeria	5,232,000	Dec. 31, 1905	18,561	878,707	47.23	.17
Tunis	2,000,000	Dec. 31, 1906	4,795	923,392	192.57	.46
Germany	60,746,000	Dec. 31, 1905	17,947,538	3,016,719,512	168.06	49.88
Hungary	20,469,000	Dec. 31, 1906	1,632,450	391,666,881	239.93	19.13
Italy	33,910,000	Dec. 31, 1907	6,953,078	667,645,797	96.02	19.69
Japan	49,319,000	Mar. 31, 1908	14,471,560	99,289,018	6.88	2.01
Formosa	3,152,000	Mar. 31, 1907	74,635	754,453	10.11	.24
In China and Korea		Mar. 31, 1907	61,611	910,889	14.71	.....
Luxemburg	218,000	Dec. 31, 1906	57,491	9,372,493	163.03	37.90
Netherlands	5,672,000	Dec. 31, 1905-6	1,658,985	93,214,669	56.19	16.43
Dutch East Indies	37,020,000	Dec. 31, 1906-7	66,523	5,359,446	80.55	.14
Curacao	53,000	Dec. 31, 1905	1,406	13,740	9.77	.26
Dutch Guiana	78,000	Dec. 31, 1906	6,525	261,405	40.06	3.35
Norway	2,321,000	Dec. 31, 1906	826,673	108,124,517	130.76	46.50
Roumania	6,292,000	Mar. 31, 1904	157,069	8,038,960	51.17	1.28
Russia (Including Asiatic part)	146,442,000	June 30, 1908	6,376,996	585,598,312	93.40	4.07
Finland	2,927,000	Dec. 31, 1906	287,780	33,884,050	117.74	11.58
Spain	19,566,000	Dec. 31, 1907	469,491	53,553,238	114.07	2.74
Sweden	5,337,000	Dec. 31, 1907	1,988,336	187,233,225	94.17	35.06
Switzerland	3,100,000	1900	1,300,000	193,000,000	148.46	62.26
United Kingdom	44,100,000	Dec. 1907	12,471,755	1,020,271,823	81.81	23.14
British Colonies:						
British India	231,856,000	Mar. 31, 1907	1,190,220	47,909,002	40.25	.21
Australian Commonwealth	4,130,000	1906	1,182,022	191,086,329	161.66	46.27
New Zealand	901,000	Dec. 31, 1906	341,114	54,358,927	159.36	60.33
Canada	5,984,000	Mar. 31, 1907	205,623	61,910,623	301.09	10.35
British South Africa	5,382,000	1906	183,192	21,931,509	119.72	4.07
British West Indies	1,742,000	1906	82,320	5,449,115	66.19	3.13
British Colonies, n. e. s.	11,915,000	1906	185,149	12,486,703	67.44	1.05
Total foreign countries	804,799,000		92,520,410	9,297,682,919	100.49	11.55
United States	87,496,000	June 30, 1908	8,706,848	3,660,553,945	420.47	41.84
Philippine Islands		June 30, 1908	5,389	529,833	.....	.....

a Exclusive of data for special private savings banks, which on March 31, 1906, held deposits amounting to \$28,574,954. This total does not include the savings deposits in chartered banks (deposits payable after notice or on a fixed day), which, on Sept. 30, 1908, amounted to \$410,332,819.

The number of depositors in savings banks per 1,000 of the total population in those countries showing greatest numbers were: Denmark, 520; Switzerland, 420; Sweden, 375; New Zealand, 380; Norway, 359; France, 319; Japan, 295; Germany, 294; Netherlands, 291; Australia, 288; United Kingdom, 283; Austria, 209; and United States, 100. Of the number of de-

positors shown in this table, 39,266,993 were depositors in postal savings banks, and the total deposits of these institutions amounted to \$2,024,807,191, while the average deposit was \$51.57. The largest number of depositors was found in the United Kingdom, where there were 10,692,555, the deposits amounting to \$766,474,125. See POSTAL SAVINGS BANKS.

SAVINGS BANKS IN 1908.

State	Number of banks	Number of depositors	Amount of deposits	Average to each depositor
Maine	52	6 225,346	\$85,502,202	\$379.43
N. Hampshire.	61	186,610	81,639,166	437.49
Vermont	48	159,841	60,493,727	378.46
Mass. c	189	1,971,644	706,940,596	358.55
Rhode Island.	18	121,561	66,580,142	547.79
Connecticut c	87	539,873	256,372,062	473.75
Total New Eng. States.	455	3,204,875	1,257,537,895	392.38
New York.....	137	2,719,598	1,378,232,780	506.78
New Jersey....	26	282,014	92,631,487	328.46
Pennsylvania.	14	452,638	160,638,670	354.89
Delaware	2	31,396	8,830,296	281.25
Maryland e	17	213,524	78,469,584	367.50
Dia. of Colum.	f 11	46,871	6,034,480	129.17
Total East'n States	207	3,746,041	1,724,857,297	460.45
W. Virginia....	1	4,858	1,099,489	226.32
N. Carolina....	22	a 36,492	5,760,337	157.85
S. Carolina....	18	a 21,698	7,891,789	363.71
Florida	3	a 4,209	844,632	200.00
Total South-ern States....	44	67,257	15,596,247	231.89
Ohio	3	99,668	53,930,291	541.10
Indiana	5	31,393	11,431,030	864.13
Illinois	g	617,782	181,361,054	293.57
Wisconsin	2	5,799	1,085,014	187.10
Minnesota	14	91,718	21,799,456	237.68
Iowa	571	a 364,523	132,748,558	364.17
Total Middle West. States.	595	1,210,883	402,355,423	332.28
Nebraska	11	14,862	2,160,715	145.32
Colorado	8	a 10,775	3,351,285	311.00
Total West. States	19	25,637	5,512,000	215.00
Calif. (total)				
Pacific States	133	a 451,155	254,695,063	564.54
Total United States	1,453	8,705,848	3,660,553,945	420.47

a Partially estimated.

b October 27, 1907.

c Returns dated October of the prior year from Massachusetts and Connecticut.

e Unofficial.

f Exclusive of International Banking Corporation.

g Included in abstract of State banks having savings departments.

SAXTON, RUFUS. An American soldier, died in Washington on Feb. 23, 1908. He was born at Greenfield, Mass., on Oct. 19, 1827, and graduated at the United States Military Academy in 1849. He was in the artillery until May, 1861, his most important service being the survey of the present route of the Northern Pacific Railroad across the continent, largely through territory never before visited by white men. He was made captain and assistant quartermaster in 1861 and the remainder of his service was in that department, until his retirement with the rank of colonel in 1888. He rendered valuable services during the Civil War, particularly as chief quartermaster of McClellan's army in West Virginia in 1861, and in organizing the transportation for the expedition to Port Royal of Gen. Thomas W. Sherman, on whose staff he also served as chief quartermaster. He became a brigadier general of volunteers in 1862 and was military governor of the department of the South during the remainder of the war, his chief duty being the enlistment and organization of colored troops. He was brevetted major general of volunteers for his Civil War service and in 1904 was given the rank of brigadier general and placed on the retired list of the army.

SCENIC AND HISTORIC PRESERVATION SOCIETY, AMERICAN.

A society organized for the protection of the beauties of natural landscape from disfigurement, the preservation of geological formations, and saving from obliteration all names, places and objects identified with local State and national history, the erection of historical memorials, etc., incorporated by the New York State Legislature in 1895. The society is required to report annually to the Legislature, and thus occupies a quasi-official position. It is the custodian of five State properties: Stony Point Battlefield, 34 acres; Watkins Glen, at the head of Seneca Lake, 103 acres; Letchworth Park on the upper Genesee River at Portage Falls, 1,000 acres; Fort Brewerton, at the foot of Oneida Lake, one acre, and Philipse Manor Hall, Yonkers. The honorary president of the society is J. Pierpont Morgan; president, George F. Kunz, and secretary, Edward Hagaman Hall.

SCHOOLS. See UNITED STATES, *Education*; EDUCATION in the UNITED STATES.

SCHOOLS OF AGRICULTURE. See AGRICULTURE.

SCHOOLS, PROFESSIONAL. See PROFESSIONAL SCHOOLS.

SCHRADER, EBERHARD. A German Orientalist, died on July 4, 1908. He was born in Brunswick on Jan. 5, 1836, studied under Ewald at Göttingen, and became professor of theology at Zürich in 1863, at Giessen in 1870, and at Jena in 1873. In 1875 he took the chair of Oriental languages at Berlin, which post he held during the remainder of his life, though since 1895 partial paralysis had made it impossible for him to discharge all of the duties of his professorship. He at first interested himself chiefly in Bible criticism, but afterward he devoted himself to the Assyrian language and Assyrian civilization, on which subjects he became known as the foremost scholar in Germany. His publications include: *Studien zur Kritik und Erklärung der biblischen Urgeschichte* (1863); and *Die assyrisch-babylonischen Kielinschriften* (1872); *Die Kielinschriften und das Alte Testament* (1872; 2d ed., 1883; 3d ed. with Zimmern and Winckler, 1901-02), English translation 1872.

SCHRÖTTER, LEOPOLD VON CHRISTELLI. An Austrian laryngologist, died on April 21, 1908. He was born in Graz on Feb. 5, 1837, studied in the University of Vienna, devoting himself especially to diseases of the throat and chest, and became connected with various Vienna hospitals where he became known as a skillful operator, along the lines followed by Türck and Czermak. To the public he was even better known as a leader in the movement to prevent the spread of tuberculosis; as an advocate of the development of Abbazia and the Austrian Riviera for a health resort, and as the founder of the Alland Sanatorium near Vienna. Dr. von Schrötter in 1887 diagnosed the disease from which the Crown Prince Frederick, of Germany, was suffering, and told him frankly that it was incurable, though he refused to describe the malady as cancerous. On the day of his death he had delivered the inaugural address to the International Congress of Laryngology at Vienna.

SCIENCES, NATIONAL ACADEMY OF. A society organized for the examination and investigation of any subject of science or art, and for

making reports at the call of the United States government, the actual expense of such examination and report to be paid out of the appropriation made for that purpose. It was incorporated by act of Congress May 3, 1863. The academy cannot, under any circumstances, receive compensation from the government for its services. Annual reports are made each year at the meetings, which are held at such places in the United States as may be specially designated. The annual meeting is held in Washington on the third Tuesday in April. The academy is composed of members, honorary members and foreign associates. Citizenship is prerequisite to full membership, while the number of foreign associates is limited to 50. The academy had in 1908 a membership of 106, with 42 foreign associates. The officers are elected for six years. Those in office in 1908, with the dates of their expiration, were as follows: President, Ira Remsen (1913); vice-president, Charles D. Walcott (1913); foreign secretary, Simon Newcomb (1909); home secretary, Arnold Hague (1913); treasurer, S. F. Emmons (1914). The autumn meeting in 1908 was held at Baltimore on Nov. 17 and 18. Among the important papers read were the following: "The Close of the Cretaceous and the Beginning of the Eocene in the Hell Creek Region of Montana, Based on Explorations of the American Museum Between 1902 and 1908," by Henry F. Osborn; "The Distribution of Sound through a Megaphone or Speaking Trumpet," A. G. Webster; "Certain Examples of Bio-Chemical Control of Cell Development," by Simon Flexner; "Further Studies of the Effect of a Low Protein Diet on High Protein Animals," Russell H. Chittenden; "The Work of the United States Fish Commission Ship, *Albatross*," Alexander Agassiz; "The Effects of Centrifugal Force on the Organization and Development of the Eggs of Certain Animals," by P. G. Conklin.

SCOTLAND, CHURCH OF. The established and State church of Scotland. The Crown is represented in its government by a Lord High Commissioner, who is appointed annually. The Church of Scotland is Presbyterian in government. Its congregations are ruled by a board of elders or laymen, elected for life from the church members. The church includes 785 ministers, 175 missionaries, 1,414 parishes, 1,655 churches, 84 presbyteries, 16 synods, and 698,566 communicants. Its income, exclusive of bequests, is about £550,000. There are 13 churches in England connected with the Church of Scotland and 6 at various places on the continent of Europe. Missions are carried on in India, Africa and China.

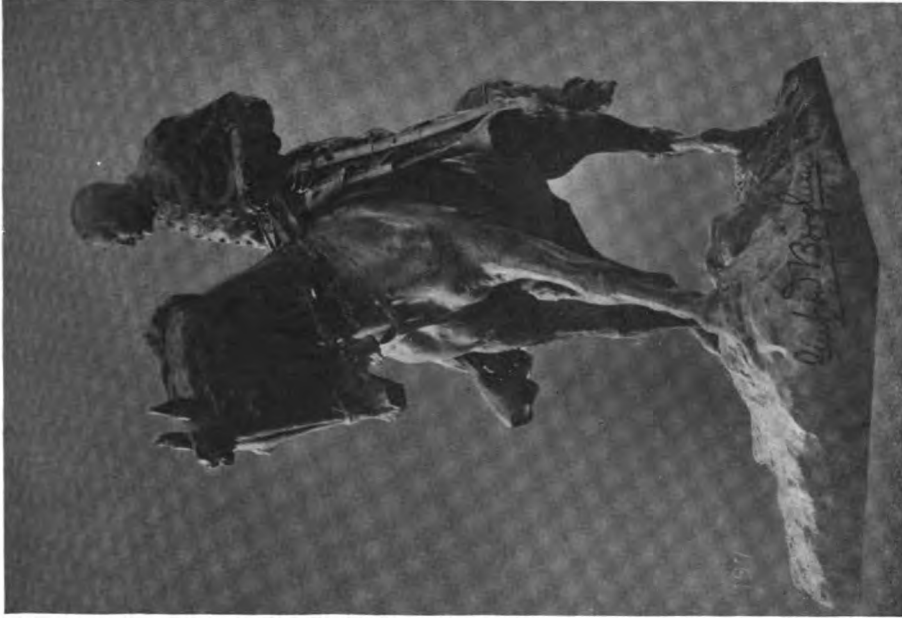
SCOTLAND, UNITED FREE CHURCH OF. A religious body formed in 1900 by the union of the Free Church of Scotland and the United Presbyterian Church. The churches number 1,631, the ministers 1,733, missionaries 331. In addition it has 4,063 elders, 16,492 communicants, 506,080 in Scotland and 44,728 in foreign fields. There are 25 continental stations. The annual income is about £1,000,000. A considerable number of ministers, elders and communicants of the Free Church were opposed to union with the United Presbyterian Church. They held the union to involve the surrender of the principles of national religion and of the confession of faith. They therefore refused to enter the union and were extruded by the ma-

jority who are now in the United Free Church from the use of their church buildings and funds. In an appeal to the Scottish courts, the judges found in favor of the United Free Church, and in the House of Lords final judgment was given in favor of the non-uniting remnant, which was found in law to be the Free Church of Scotland. The effect of this decision was to vest the whole of the funds and heritable property of the Free Church in the non-uniting minority, and as they were not able to occupy all the churches or administer the funds, a royal commission was appointed in Dec., 1904, to inquire into the matter. An act of Parliament was passed in 1905 by which an executive commission was established which proceeded to allocate the property, etc., between the two churches. The Free Church of Scotland consists of 5 synods, 12 presbyteries, 81 ministers, and 200 congregations, representing about 100,000.

SCULPTURE. The most interesting exhibition of sculpture during 1908 was that of the work of the late Augustus Saint-Gaudens held at the Metropolitan Museum. Reproductions of all the noted sculptor's masterpieces were shown under favorable conditions. The exhibition was visited by thousands of art lovers and remained open for several months.

The Academy of Design's winter exhibition was notable for the first adequate display made in New York by American sculptors as a body. Mr. Frank J. Gould loaned his riding circle adjoining the Fine Arts Building and the National Sculpture Society arranged the exhibition in connection with that of the academy. Of the larger groups shown that by Lorado Taft representing a Maeterlinck group of blind men and women pushing their way in the wake of a young girl who holds aloft a child, showed excellent modeling and no little imagination. But the question as to what purpose is served by this gruesome portrayal of a painful scene upon so imposing a scale, and involving such labor, is a pertinent one hard to answer. Daniel C. French showed a "Mourning Victory" for the Melvin Monument—an angel whose fine face is shadowed by the American flag, holds out a branch of laurel. An attempt to improve upon the country's soldiers' monuments that add a pang to grief, is made by Augustus Lukeman, who at least deserves praise for good intentions. His winged figure holds aloft a flag and follows the typical soldier. The composition, while ill-balanced, has some good detail. Gutzon Borglum's equestrian figure of General Sheridan is a spirited piece, full of action.

The "Primitive Marksman," an Indian lying upon his back drawing the bow, by Miranda, is full of life-like vigor. Chester Beach's "Waterfall," in which the falling water is made to suggest a nude figure, has some grace, but is hardly so pleasant in achievement as his "Baby's Head." Paul W. Bartlett and Robert I. Aitken both showed nudes of interest. The latter sculptor also had a strong head of the actor, David Warfield. Some nicely modeled children were by J. Scott Hartley. Sergeant Kendall reproduced the lively child that he portrayed so successfully upon canvas in the adjoining exhibition of painting. A graceful fountain with a girl and satyr was by H. A. MacNeil. Important contributions were also made by Herbert Adams, Karl Bitter, A. S.



STATUE OF GENERAL P. H. SHERIDAN
By Gutzon Borglum



MELVIN MEMORIAL AT CONCORD, MASS.
By Daniel C. French



SOLDIERS' MONUMENT FOR SOMERVILLE, MASS.
By Augustus Lukeman

Eberle, Bela L. Pratt, and Enid Yandell. The Helen Foster Barnett prize was awarded to Mr. Aitken for his nude group, "The Flames."

The National Sculpture Society also held in Baltimore a spring exhibition at which nearly five hundred works were shown. Plaster casts of Solon Borglum's statue of General J. B. Gordon, and Karl Bitter's monument to General Franz Siegel and Shradys' "Washington at Valley Forge" were among the most important pieces.

SCULPTURE SOCIETY, NATIONAL. A society of sculptors, organized for the promotion of appreciation of ideal sculpture, the improvement of the quality of the sculptor's art as applied to industries, and the providing from time to time for exhibitions of sculpture and the objects of industrial art in which sculpture enters, incorporated in 1896. In 1908 the society had 249 members, of whom 91 were sculptor members, whose work has to pass a special committee before being recommended for election. Exhibitions are held under the auspices of the society in different cities in the United States. The first of these was held in April, 1908, at Baltimore. The president of the society is Herbert Adams, and the secretary J. Scott Hartley, 215 West 57th street, New York city.

SEISMOLOGY. See EARTHQUAKES.

SELFRIDGE, THOMAS E. An American soldier, died Sept. 17, 1908 at Fort Myer, Va. He was born in San Francisco, Cal., in 1882, and graduated from the United States Military Academy in 1903. He became a second lieutenant in the artillery corps in that year and was made first lieutenant in 1906. He became interested in aeronautics and at his own request was transferred to the signal corps in 1907. He became a member of the aeronautic board of the army and on the day of his death was engaged in a flight with Orville Wright in his aeroplane which was preparing for a government test at Fort Myer. One of the propellers broke and the machine fell to the ground from a height of about seventy-five feet. Wright was seriously injured, and Lieutenant Selfridge died three hours later in the Fort Myer hospital.

SENEGAL. A French colony in West Africa, consisting of the colony proper and the former protectorate, rejoined to the colony in 1904. The total area is estimated at 806,000 square miles, and the population at over 1,100,000, of whom 200,000 are under direct French administration. In the colony proper, on the coast, are the municipal communes of St. Louis, the capital, with 24,070 inhabitants in 1904; Dakar, a fortified naval station and the principal port, the seat of the governor general of French West Africa, with 18,447 inhabitants; Rufisque, 12,446 inhabitants; and Goree, 1,560 inhabitants. The products include maize, millet, rice, castor beans, coconut, rubber, gum, and earth-nuts, the latter forming the principal export. In 1906 there were produced 388 pounds of cotton and 45,766 pounds of seed cotton. In 1907 the imports, including those of Upper Senegal-Niger, were valued at 54,698,406 francs, and the exports at 43,858,850 francs. The trade is mainly with France, England and Germany, which have regular steamship connection with Dakar. The imports from France in 1907 amounted to 30,895,000 francs, and the exports

to France, 32,681,000 francs. The harbor of Dakar has been greatly improved. During the rainy season a steamship service is maintained on the Senegal from St. Louis to Kayes, a distance of 490 nautical lines. Dakar, Rufisque and St. Louis are connected by a railway, 164 miles long. A narrow-gauge railway runs from Kayes, on the Senegal, to Koulikoro, on the Niger, 343 miles long. The length of telegraph line in 1906 was 1,363 miles. A submarine cable connects Dakar with Brest, France. The colony is administered by a lieutenant-governor, who is under the governor-general of French West Africa (q. v.). The natives of the four above-mentioned communes are French citizens, and elect the deputy who represents the colony in the French Chamber.

SENN, NICHOLAS. A distinguished American surgeon, died on Jan. 2, 1908. He was born in Buchs, Canton St. Gall, Switzerland, on Oct. 31, 1844, in his ninth year came to the United States with his parents, who settled at Ashford, Wis., and for several years lived on a farm there. He studied at the Chicago Medical College, and graduated at that institution in 1868, and ten years later he studied at the University of Munich. He was house physician at the Cook County Hospital in 1868-69; practiced in Fond du Lac in 1869-74, and in Milwaukee in 1874-93; was professor of surgery at the Chicago College of Physicians and Surgeons in 1884-87, and of the principles of surgery at that institution in 1887-90, when he became professor of practical and clinical surgery at the Rush Medical College. He was also professor of surgery in the Chicago Polyclinic, and professorial lecturer on military surgery at the Chicago University. Since 1893 he had practiced in Chicago. Dr. Senn served as surgeon-general of Wisconsin, and as surgeon-general of the National Guard of Illinois, and at the beginning of the Spanish-American war he was appointed chief surgeon of the Sixth Army Corps (with the rank of lieutenant-colonel of volunteers), and chief of the operating staff in the field, in which position he served until Sept., 1898, at Chattanooga, Tenn., at Santiago, Cuba, at Ponce, Porto Rico, and at Montauk Point, L. I., introducing many improved methods of sanitation into the camps. Dr. Senn was the author of several works of much professional value, such as *Varicocoele* (1878); *Experimental Surgery* (1889); *Intestinal Surgery* (1889); *Surgical Bacteriology* (1889); *Principles of Surgery* (3d ed., 1901); *Medico-Surgical Aspects of the Spanish-American War* (1900), and *Practical Surgery for the General Practitioner* (1901).

SERUM THERAPY. The search for specific sera continued in many laboratories during 1908. The only serum, with the possible exception of tetanus antitoxin, which has been at all comparable in its results with diphtheria antitoxin, was Flexner's antiserum for cerebro-spinal meningitis. A large number of cases published by widely separated clinicians seemed to prove that this substance aborts many cases, relieves the symptoms, shortens the course and lessens the mortality of this disease. Favorable effects are proportional to the promptness with which the serum is given. The mode of administration is by injection directly into the spinal canal, after this is punctured and an amount of spinal fluid withdrawn equal to the dose of serum

to be injected, about 30 c.c. Although the mortality of this disease varies in different localities and also in different epidemics, and although the epidemic and sporadic forms differ in severity, the death rate of cerebro-spinal meningitis averaged from 70 to 90 per cent. under symptomatic treatment. With the serum this death rate has been reduced to 25 per cent. or lower. In New York City in 1906 there were 5,000 cases with a mortality of 70 per cent. Since that time Flexner and Jobling, of the Rockefeller Institute, have collected 400 cases of meningitis treated with antimenigitis serum out of which 75 per cent. recovered and 25 per cent. died. The antiserum was produced by Flexner and Jobling as follows: Horses are inoculated subcutaneously with a small quantity of mixtures of cultures of different strains of the meningococcus heated to 60° C. for half an hour, and subsequently the dose is doubled at each injection, at seven-day intervals. Certain animals were kept under the process of immunization for a year. Hot horse serum was used by Petit in the local treatment of wounds and burns. He reports that healing was much more rapid in the burns treated with hot serum than with picric acid or boric acid, and attributed the favorable action to the circumstance that the serum revives injured cells so that they aid in the healing process, instead of dying and generating poisons. The serum also brings leucocytes to the spot. Pyocyanase is the filtrate of a three weeks' old culture of the pyocyanus bacillus. This substance has been used as an adjuvant to antitoxin in the treatment of diphtheria. It is used locally as a spray and possesses the property of rapidly killing the bacilli swarming in the patches of membrane in the throat. Other serums are mentioned under ANTITOXIN, LEPROSY, PLAGUE, and RABIES (q. v.).

SERVIA. An inland kingdom of the Balkan peninsula. Area, 18,649 square miles. Population on Dec. 31, 1907, 2,784,016, against 2,492,882 in 1900. In 1907 there were 29,565 marriages, 109,490 births, and 62,451 deaths. The principal cities in 1905 were: Belgrade, the capital, 79,110; Nish, 21,946; Kraguyevatz, 15,596; Leskovatz, 13,647; Pozarewatz, 12,162; Shabatatz, 12,151; Vrania, 11,375; Pirot, 10,000.

PRODUCTION. The wheat crop in 1907 was 11,000,000 bushels, against 13,211,000 in 1906; maize in 1907, 27,786,000 bushels, against 21,431,000 in 1906; oats in 1907, 4,000,000 bushels, against 4,642,000 in 1906; wine in 1907, 10,000,000 gallons; sugar beets in 1907-8, 32,800 metric tons, and estimated for 1908-9, 45,000 metric tons. The production of beet sugar in 1907-8 was 4,250 metric tons, and for 1908-9 it was estimated at 6,750 tons. Coal, lignite, gold, copper, lead, antimony, and other minerals are mined. The late tariff war with Austria-Hungary gave an impulse to the domestic industry. The pork-packing industry has been firmly established. A new flour mill was erected, and old ones were enlarged. An electric plant was installed at the government tobacco factory. Two factories for the making of brick and tile were erected, one for the manufacture of hemp goods, and one for weaving hemp and flax.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1907 amounted to 70,583,327 and 81,491,262 dinars, respectively, against 44,328,642 and 71,604,098 in 1906 (dinar=

franc=19.3 cents). The principal imports in 1907 were: Agricultural and forest products, 10,264,000 dinars; metals, 10,562,000; drugs and chemicals, 3,998,000; textile raw materials and manufactures, 23,049,000 (yarn, 6,012,000; woollens, 7,288,000); implements and machinery, 6,352,000. The exports of agricultural and forest produce amounted to 73,604,000 dinars, including wheat, 10,303,000; maize, 11,820,000; barley, 4,041,000; plums, 15,744,000; fresh and salted meats, 3,803,000; pigs, 1,614,000; hides and skins, 2,749,000. The export of minerals and metals amounted to 5,010,000 dinars. The trade with the principal countries of origin and destination in 1907 was as follows, in dinars:

From and to	Imports	Exports
Austria-Hungary	25,569,946	12,932,390
Germany	20,320,391	32,925,623
Great Britain	10,220,270	2,337,453
Belgium	755,696	13,010,853
Turkey	3,327,000	4,379,000
Russia	854,000	3,134,000
France	2,429,000	2,705,000
Italy	2,299,000	4,899,000

Owing to the tariff war with Austria-Hungary, which began in 1905, the trade of the latter with Servia has greatly fallen off. The imports of Servia from Austria-Hungary in 1904 amounted to 36,584,000 dinars, and in 1905, 33,376,000. The exports of Servia to Austria-Hungary amounted to 55,351,000 dinars in 1904 and 64,712,000 in 1905. In 1906 Austria-Hungary's share was still 50.10 per cent. of the total imports and 41.96 per cent. of the total exports of Servia; in 1907 her share fell to 36.27 and 15.87, respectively. In March, 1908, the two countries at last concluded a commercial treaty, Austria raising the duty on Servian agricultural products, and Servia retaliating by raising duties on Austro-Hungarian industrial products from 20 to 40 per cent. The treaty was signed separately by the Austrian and Hungarian governments, but at the end of 1908 was still awaiting ratification by the Austrian and Hungarian parliaments.

The length of railways at the end of 1907 was 388 miles, nearly all owned by the government; of telegraph lines 2,136 miles.

GOVERNMENT AND FINANCE. The form of government is a constitutional monarchy. The present King is Peter I, born in 1844, who was elected King June 15, 1903, and ascended the throne June 25. The unicameral National Assembly is composed of 160 members, elected for four years. The franchise is based on the payment of 15 dinars in direct taxes. The State Council, composed of members partly appointed by the King and partly by the Assembly, supervise the general administration. The executive power is exercised through a responsible cabinet. The revenue and expenditure for 1908 were estimated at 95,239,038 and 95,091,253 dinars, respectively. The principal estimates of revenue were: Direct taxes, 25,962,950 dinars; customs, 11,394,006; excise, 25,353,000; state monopolies, 26,789,683; railways, 9,350,000; and of expenditure: Civil list, 1,200,000; public debt, 27,018,875; public works, 10,470,000; and war, 27,742,000. The public debt stood at 545,627,000 dinars on Jan. 1, 1908.

ARMY. Military service is universal and compulsory, with liability from 18 to 50 years of age

and service from 21 to 43 or 44 years of age.

The national army is composed of 3 bans,—the first consists of the active army and its reserve, constituting the first line; the second ban provides reserve troops, and the third the territorial army. There is also the *levée-en-masse* consisting of all men between 18 and 50 years of age, including those who have passed through the national army. Service is as follows:

In the first ban for 18 months in the infantry, 2 years in cavalry and field artillery in the ranks, and 9 years in the reserve of the active army; in the second ban, 5 years; in the third ban, 7 years. There are 20 regiments of infantry, 4 regiments of cavalry, 5 regiments of field artillery, 1 battery of horse artillery, 1 regiment mountain artillery, 1 regiment howitzers, and 2 battalions of fortress artillery. In war, the field army would amount to 110,000 combatants, and the reserve (second ban) would raise this to 175,000, while the supplementary reserve would bring the grand total to about 235,000 trained men. The peace strength of the army is about 37,000 of all grades.

HISTORY. On June 9, 1907, the premier, M. Pasitch, resigned, with his ministry, owing to the attacks of the Radical opposition, arising from charges made against the premier by the Servian minister at Berlin, but he was later re-appointed. The obstructive tactics of the Radicals continued, however, and on April 10, 1908, M. Pasitch again resigned and the ministry was reconstructed. The general election on June 1 gave the Government party 81 seats; the Young Radicals, 46; the Liberals, 16; the Progressists, 8, and the Socialists, 1. The Young Radical element continued to block the action of the legislature and the new Minister, M. Pera Velimirovich, who succeeded on July 6, found a new crisis on his hands. The King, however, sent for the leaders of the opposition and enforced a compromise, whereby after passing the budget and the tariff treaty with Austria-Hungary, the ministry should give way to a coalition government under M. Milovanovich. On August 18th the treaty with Austria passed, and was immediately put into effect, thus bringing an end to the customs war, which had lasted three years.

The chief events of the year arose from the proclamation of Bulgaria's independence and the annexation of Bosnia and Herzegovina by Austria, and for an account of them in relation to European affairs see the article **BALKAN QUESTION**. These two events greatly angered the Servians. In the first place the Austrian annexation of the provinces divided Serbia from Montenegro and cut her off from access to the sea. In the second place, Bulgaria was regarded as faithless to the interests of the Slav states, in that in return for Austrian recognition of her independence she acquiesced in the annexation and did not make common cause with her neighbors against Austrian encroachment. (See **BULGARIA**.) War feeling ran high at first, and 120,000 of the reserves were immediately called out. A government proclamation pointed to the violation of the Treaty of Berlin, and asked the signatory powers for justice, demanding either the restoration of the *status quo*, or failing that, compensation for the injuries done to Serbia. The war feeling, however, did not spread to the army or to the majority of the members of the Skupshtina. The latter held a secret session Oct. 10 and voted against war with Austria-Hungary. The war party, however, was active,

and made violent attacks in the press against the government. A movement against the existing dynasty was revived and King Peter was openly assailed in the newspapers. The Crown Prince, on the other hand, became a popular favorite on account of his denunciations of Austria's act, and his efforts to enlist the aid of Russia. Serbia entered into negotiations with Montenegro (q. v.) and it was understood that in the case of war the two states would stand together. It was reported that a military convention had been definitely agreed upon between them. The demands of Serbia and Montenegro were that a certain portion of Bosnia should be withdrawn from Austria and divided between the two states so that their boundaries might be co-terminus, but it did not appear that Austria-Hungary would, in any circumstances, consent to this, and danger of war seemed for some time imminent. On Oct. 21 the Crown Prince and M. Pasitch visited St. Petersburg, and on their return the Crown Prince announced that while he was assured of Russian sympathy, the Servians must fight on their own behalf even if others did not come to their assistance. On Nov. 18 a joint note from the powers was addressed to the Servian government, urging that the troops stationed on the Austrian frontier should be recalled. At the close of the year the prospects seemed favorable to a peaceful adjustment. In addition to the article on the **BALKAN QUESTION**, see **MONTENEGRO**; **AUSTRIA-HUNGARY**; **TURKEY**; and **MACEDONIA**.

SEWAGE PURIFICATION. The campaign against water pollution by domestic sewage and manufacturing wastes (see **SANITATION**) in 1908 was spreading over large sections of the United States. As a consequence, a considerable number of sewage-treatment works were built and many more were projected. The method of treatment most in vogue during 1908 was sedimentation or septic tanks as a preliminary to percolating filters. This held good for new plants in both Great Britain and the United States, the two countries which have taken the lead in sewage purification. In Germany, scientific investigators favor the same methods, but the construction of treatment works there was checked, both in numbers and in degree of purification sought, by a change of policy which laid more stress on purifying water taken from streams than on treating the sewage poured into them. This is a rational view and practice, where large streams are concerned, since the real object of sewage purification at the present day is to prevent offense to the nose and eyes, rather than to convert sewage into drinking water. The latter is as yet wholly impracticable as a general proposition, although quite possible, if expense be utterly disregarded. During 1908 a large sewage purification plant for the city of Columbus, Ohio, was put in operation, and tests on the local sewage of Baltimore and other preparations for a plant to treat the sewage of that city were continued. Both the actual plant at Columbus and the projected one for Baltimore included settling or septic tanks and percolating filters. Besides Columbus, Providence and Worcester, no American city of any size had established sewage purification works, but scores of plants had been built by the smaller cities and towns, by public institutions and by individuals. In Great Britain, nearly all inland towns, large and small, have sewage works, and so have many of the large cities of continental Europe, includ-

ing Berlin and Paris; but this is largely due to the fact that these municipalities are located on small streams, of capacity insufficient to afford dilution. Seaport cities the world over, and in general all cities on streams whose volume of flow is far in excess of the volume of wastes, dispose of their sewage by dilution, perhaps employing rough screens or relatively small sedimentation tanks to remove some of the larger particles of suspended matter, in case offense would otherwise be caused.

The Royal Commission on Sewage Disposal, appointed by the late Queen Victoria in 1898, and which has since been studying sewage disposal questions, published its fifth report in 1908. This report discusses in considerable detail all the present-day methods of treating municipal sewage, compares the costs and advantages of the different methods, and submits recommendations dealing with various phases of the subject. The main general conclusions of the report are that:

"It is practicable to purify the sewage of towns to any degree required, either by land treatment (sewage farms or road irrigation), or by artificial filters (either contact beds or percolating filters), and there is no essential difference between the two processes."

"The main questions, therefore, to be considered in the case of a town proposing to adopt a system of sewage purification are (1) what degree of purification is required in the circumstances of that town, and of the river or stream into which its liquid refuse is to be discharged; and (2) how the degree of purification can, in the particular case, be most economically obtained."

The Commission also concluded that before sewage is put on land or filters it is generally desirable to remove "a considerable proportion of the grit and suspended matters," which may be done by either settling or septic tanks. As between contact beds and percolating filters, the advantages of the latter were held to be the greater. Besides the report just named, two other important publications of 1908 were Raikes' *Sewage Disposal Works* (London and New York), which discusses the subject from the viewpoint of an experienced British engineer; and Dunbar's *Principles of Sewage Treatment*, translated from the German by Calvert (London and Philadelphia, 1908), which is, perhaps, the broadest review of the whole field that has ever been written, and which has the further merit of giving results of German studies and practice which have been hitherto but little known outside of Germany.

SEWERAGE. With the rapidly increasing demand for sewage purification wastes, in order that stream and other water pollution may be stopped, the already strong tendency to construct separate systems of sewerage was gaining ground. By having one system of gathering conduits for house and industrial sewages and another for surface or rain water, it is often feasible to pass the storm water directly to some nearby stream, without purification, thus greatly lessening the amount of sewage to be treated, as well as decreasing some of the complications due to attempting to treat such fluctuating columns of liquid. Ogden's *Sewer Construction* (New York) appeared in 1908. It deals particularly with building sewers, as did *Sewer Design* (New York, 1903), by the same author, with planning them.

SHEEP. See STOCK RAISING.

SHERMAN, JAMES SCHOOLCRAFT. An American member of Congress (Republican), elected Vice-President of the United States in 1908, on the Republican ticket. He was born at Utica, N. Y., on Oct. 24, 1855, graduated at Hamilton College in 1878, and two years afterward was admitted to the bar. In 1884 he became mayor of Utica, and in 1886 was elected to Congress, in which body he has served continuously with the exception of the period 1891-93. Until his nomination for the vice-presidency he was one of the leaders of his party in the House, serving as chairman of the Committee on Indian Affairs, and in 1902 was a candidate for the party nomination as speaker. Because of the candidacy of Sereno E. Payne, also a Representative from New York, however, he withdrew his name. In 1900 he was offered the appointment as one of the appraisers of the port of New York, but, in deference to the wishes of his constituents, declined. The same year he was also prominently mentioned for the Republican nomination as Vice-President. In the campaign of 1908 he served as chairman of the Republican Congressional Committee, paying special attention to the dollar contributions, which, it is said, he solicited at the suggestion of President Roosevelt to offset the then general criticism that the large corporations were financing the campaign. In June, 1908, at Chicago, Mr. Sherman was nominated for the Vice-Presidency by the Republican National Convention, and in November was elected to that office. During the campaign he was charged by the *New York World* with having, in 1901, used improper influence as Congressman to forward the plans of a corporation, known as the New Mexico Lumber and Development Company, which aimed to secure from the Territory of New Mexico certain timber lands for about one-tenth their value. Mr. Sherman in his defense admitted the existence of the New Mexico Lumber and Development Company, and also that he had for a time held stock in it. He denied, however, that government lands were involved, and stated that, after examining the lands in question, he had decided that the venture would not be profitable and the plan was then abandoned and the company dissolved. Mr. E. L. Philipp, treasurer and general manager of the company, also issued a statement in which he said that, as soon as the company found out that the lands could not be secured without violating the law, the project was abandoned.

SHIPBUILDING. During 1908 there was launched from the shipbuilding establishments of the world a total tonnage, both naval and merchant marine, of 2,142,975 tons, representing 1,532 vessels, or all over 100 tons reported to Lloyd Register. This was a smaller amount than for many years, being a reduction of 31 per cent. from the figures of 1907 and 34½ per cent. from those of 1906. These details and others are shown in the accompanying tables. The shipbuilding industry is virtually Great Britain against the world, as that country builds one-half of the ships used in the world's commerce. The largest steamship of the year, the *George Washington*, was built at Stettin for the Hamburg American Line. The turbine continued to be used for high speed passenger and war ships, but there were marine engineers who favored its combination with reciprocating engines to secure the greatest engine efficiency. (See STEAM TURBINE.)

TABLE SHOWING THE TONNAGE OF VESSELS OF 100 TONS GROSS AND UPWARD (EXCLUDING WAR-SHIPS) LAUNCHED DURING THE YEARS 1903-1908

Year	United Kingdom	Austria-Hungary	British Colonies	Denmark	France	Germany	Holland	Italy	Japan	Norway	United States	Other Countries	Total
	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	No. tons
1903	1,190,618	11,328	34,090	28,009	92,768	184,494	59,174	50,069	34,514	41,599	381,820	35,928	1050 2,145,631
1904	1,205,162	16,645	30,965	15,859	81,245	202,197	55,636	30,016	32,969	50,469	238,518	28,254	1643 1,987,035
1905	1,623,168	16,402	10,798	17,557	73,124	255,423	44,135	61,629	31,725	52,580	302,827	25,554	1578 2,514,922
1906	1,828,343	18,590	26,042	24,712	35,214	318,230	66,809	30,560	42,489	60,774	441,067	26,913	1836 2,919,763
1907	1,607,890	8,717	46,443	28,819	61,635	275,003	66,823	44,666	66,254	57,556	474,675	37,807	1788 2,776,088
1908	929,669	23,502	34,181	19,172	83,429	207,777	58,604	26,864	59,725	52,839	304,543	32,981	1405 1,833,286

TABLE SHOWING THE NUMBER AND DISPLACEMENT OF WARSHIPS OF 100 TONS AND UPWARD LAUNCHED FOR THE VARIOUS NAVIES DURING THE YEARS 1903 TO 1908

Year	British	United States	French	German	Italian	Japanese	Russian	Other Flags	Total
	tons	tons	tons	tons	tons	tons	tons	tons	No. tons
1903	147,813	66,140	30,780	60,590	.....	2,245	8,900	33,450	119 391,100
1904	126,375	170,185	43,600	44,970	25,932	57,200	35,317	21,586	102 435,006
1905	96,506	98,200	28,611	36,487	14,490	41,277	82,204	22,564	118 363,211
1906	85,700	45,443	15,183	62,678	3,039	50,633	15,721	27,448	148 362,972
1907	133,406	11,590	33,594	97,660	29,154	608	1,750	10,151	142 321,211
1908	49,560	52,850	21,600	14,800	25,400	13,917	38,430	47,574	127 308,689

During the fiscal year 1907-1908, according to the Commissioner of Navigation, 1,457 vessels of 614,216 gross tons were built and documented in the United States, compared with 1,157 vessels of 471,332 gross tons for the previous fiscal year. Of the total for 1908 450,017 gross tons were built of steel. The steel construction was thus not only by far the largest in American

history, but it was demonstrated that the capacity of the United States for steel construction had virtually doubled since the fiscal year 1901. The product was over fourfold that of 1899. The Bureau of Navigation reported 1,104 sail and steam vessels of 287,603 gross tons built in the United States and officially numbered during the calendar year of 1908, as follows:

	Wood				Steel				Total	
	Sail		Steam		Sail		Steam		No.	Gross
	No.	Gross	No.	Gross	No.	Gross	No.	Gross		
Atlantic and Gulf.....	120	31,370	358	11,200	3	2,802	31	44,513	512	89,885
Porto Rico	10	111	1	11	.	.....	.	.....	11	122
Pacific	14	650	233	20,141	.	.....	8	13,649	255	34,440
Hawaii .....	.....	.....	1	14	.	.....	.	.....	1	14
Great Lakes .....	.....	.....	81	1,578	.	.....	54	156,064	135	157,672
Western Rivers .....	.....	.....	185	5,300	.	.....	5	170	190	5,470
Total	144	32,131	859	38,244	3	2,802	98	214,426	1104	287,603

During 1908 American shipyards on the Great Lakes launched 39 vessels, of which 24 were bulk freighters, 2 passenger boats, 1 package freighter, 1 Canadian canal freighter, 3 tugs, 3 fire boats, 1 lightship, 2 drill boats, 1 sand sucker, and 1 supply boat. Of these the American Shipbuilding Company launched 18, and the Great Lakes Engineering Works 9, the remainder being distributed among individual yards. In 1907 the record was 56 vessels, of which 40 were bulk freighters, 3 package freighters, 1 passenger steamer, 1 wrecker, 1 lighter, 1 mail boat, 5 tugs, and 4 scows. On the Atlantic coast at Camden, N. J., the *Oklahoma*, 5,853 tons, was launched and was the single large ship over 5,000 tons to be built for the foreign trade and launched in 1908. The *Brazos*, for the Mallory Line, built at Newport News, was put into commission during the year and was the largest of the coastwise ships. She was 418 feet long, 54 feet beam, and 37 feet depth, and 6,399 gross tons, 4,077 tons net, 418 by 54 beam molded, 416x54x37, 10,000 tons displacement, 6,400 tons, load depth 24 feet. The *Commonwealth*, one of the finest inland water vessels ever constructed, was built for the Fall River Line for its Long Island Sound traffic. The *Commonwealth* was 455 feet 2 inches length over all, 55 feet beam molded, 22 feet molded

depth, and 6,410 tons displacement, loaded. She was designed for regular work at 18 statute miles an hour, with sufficient power to make 20 or 22 miles when necessary.

Throughout the British Isles there was a marked decline in the tonnage launched during 1908, which was far beyond even the worst fears at the beginning of the year. This is clearly indicated by the following tables, compiled from statistics in *Engineering*, London:

Aggregate of Production in the United Kingdom		
	1908	1907
Steamers	tons 980,600	tons 1,739,200
Sailing ships	54,200	56,200
Total	1,034,800	1,795,400
His Majesty's Dockyards.....	42,426	51,800
Grand Total	1,077,226	1,847,200
Foreign-owned tonnage	376,600	547,000
Per cent. of total	35	30.4
Total Merchant Tonnage	992,250	1,714,500
Per cent. of steam merchant tonnage to total merchant tonnage	95	96.7
Indicated Horsepower of Engines	1,157,140	1,816,000
Per cent. of all naval tonnage to merchant tonnage	7.5	7.75

Ten large merchant steamers of 10,000 tons and over were under construction in British

shipyards during the year, five of which, building at the shipyards of Harland and Wolff, Belfast, were for the transatlantic service. The largest of these was the Holland-American Liner, *Rotterdam*, of 23,980 tons, after which came the Red Star Liner *Lapland*, 18,565 tons; the White Star Liners *Laurentic* and *Megantic* each of 15,340 tons, built for the Canadian service; and the *Minnewaska*. During the year 22 warships were built for the British navy and 14 for foreign navies, amounting to 74,976 tons and 219,850 indicated horse power, the aggregate value representing £8,235,000. Two ships of the first class or Dreadnought type, the *St. Vincent*, and *Collingwood*, were launched from government yards, while the *Minas Geraes* for the Brazilian navy was being built by Sir W. G. Armstrong, Whitworth and Co., with engines by Vickers Sons and Maxim, Limited. The *Laurentic* is interesting as being designed to combine in her motive power turbines and reciprocating engines, the outside propellers being driven by the latter, while there is a low-pressure turbine in the centre line of the ship.

During the year preparations were made for the construction of two enormous liners for the White Star Line by Messrs. Harland and Wolff at their yard at Belfast, Ireland. These two steamships will be between 900 and 1000 feet in length, of 37 feet draught and of 60,000 tons displacement. The combined horse power of the engines of each ship will be 50,000, and while extreme speed is not aimed at, at least 21 knots an hour will be maintained. Like the *Laurentic* a combination of reciprocating engines and turbines will be used. The construction of these vessels has involved vast preliminary work, including the complete transformation of the berths where the *Adriatic*, *Baltic*, and *Celtic* were built. The gantries, or steel frame work carrying travelling cranes for transporting the material to the place of erection, alone cost in the neighborhood of \$1,000,000.

SHOES. See BOOTS AND SHOES.

SHOOTING. The most important event in the shooting world in 1908 was the international team rifles match, held at Bisley, England, in connection with the Olympic Games (q. v.). The rules of the match provided that each team should consist of six men and that each contestant should be entitled to fifteen shots at 200, 500, 600, 800, 900 and 1000 yards. The weapons used by each team were those of the country each represented. The United States won the match, scoring a total of 2531 points. England scored 2496, Canada 2439, France 2272, Sweden 2231, Norway 2192, Greece 1886, Denmark 1909. The revolver team match was also won by the United States with a score of 1914. Belgium was second with 1868, and England third, with 1816.

The ninth annual United States Revolver Association tournament had 150 entries. Lieutenant R. H. Sayre, N. G. N. Y., won the revolver championship, scoring a total of 462 out of a possible 500. Other results of the tournament were: Pistol championship, J. E. German, San Francisco, and P. Hanford, New York, tied at 468; military revolver championship, C. F. G. Armstrong, San Francisco; military record match, C. F. G. Armstrong. In the matches held under the auspices of the Na-

tional Rifle Association of America, the individual military championship was won by Lieutenant S. A. Harris, with a score of 582. Other winners were: Wimbledon Cup (1000 yards), Captain K. K. V. Casey; president's match, Sergeant A. Brest; Leach Cup, Captain K. K. V. Casey; regimental team championship, Sixth Massachusetts Infantry; regimental skirmish match, Corps of Engineers, U. S. A.; company team match, U. S. Marine Corps. The U. S. Infantry won the national team match, with a score of 3224. The U. S. Navy was second, with 3210, and the U. S. Cavalry third, with 3180. Lieutenant A. D. Rothrock, Ohio National Guard, won the individual match. The intercollegiate out-door championship was won by George Washington University, and the indoor intercollegiate by Columbia.

SHUVALOFF, COUNT PAUL. A Russian soldier and diplomat, died on April 3, 1908. He was born in 1830 and distinguished himself in the Crimean War, afterwards reaching the rank of general. He was ambassador to Berlin from 1885 to 1894 and afterwards governor-general of Poland.

SIAM. An independent kingdom of Indo-China and the Malay Peninsula. In 1908 Siam ceded to Great Britain the States of Kelantan and Tringanu (q. v.) in the Malay Peninsula, embracing an area of about 8000 square miles. The area of Siam is about 238,000 square miles. Its population is between 6,000,000 and 7,000,000. In 1907 there were in the country about 1500 foreigners, including 293 British, 208 Germans, and 200 French. The immigration of Chinese coolies in 1906 and 1907 was 60,120 and 88,691 respectively; their emigration, 40,826 in 1906 and 53,644 in 1907. Bangkok, the capital, has about 500,000 inhabitants, nearly one-half Chinese.

PRODUCTION. Gold, copper, and tin are being mined extensively, particularly tin, which is found in great abundance on the island of Tongkah, or Junk Ceylon, and in other parts of Siamese Malay. In 1905-6 the export of tin metal from Puket, the port of Tongkah, was 4232 tons. The cutting of teak in the northern forests is almost entirely in British hands. In 1906 the export of teak from Siam was 96,837 tons, against 101,397 tons in 1905. The number of teak logs floated down in 1907 was 113,000. In both 1906 and 1907 there was a great decrease in the number of logs got out from the forests. The export of rice, the chief product and staple food, was 917,682 tons in 1906, against 820,864 tons in 1905. The rice crop of 1906 was estimated to be the largest on record, and 1,000,000 tons were expected to be available for export. The export of pepper in 1906 was 2,996,091 pounds, valued at \$300,405; in 1907, 3,307,784 pounds, valued at \$285,277.

FOREIGN COMMERCE. The imports and exports for 1907 amounted to 78,685,000 and 99,730,000 ticals respectively, against 76,004,954 and 110,600,852 ticals in 1906 (the average value of the tical was 31 cents in 1906 and 1907). The decrease in exports in 1907 was due entirely to the falling off in the export of rice. The imports of cotton goods in 1907 were about 1,500,000 ticals' worth in excess of that of 1906. The principal imports are cotton yarn and cotton fabrics, metal manufactures, hard-

ware and cutlery, machinery, petroleum, gunny bags, provisions, sugar, and opium. The exports are mainly rice (86,565,000 ticals in 1907), teak wood (12,789,000 ticals in 1907), fish, hides of buffaloes and cattle, pepper, stick-lac, raw silk, silk fabrics, and birds' nests. The total foreign trade of 1907 showed an increase of about 27,000,000 ticals over the average for the past five years. The trade with the principal countries of origin and destination in 1907 was as follows, in ticals:

From and to	Imports	Exports
Singapore	20,753,000	36,338,000
Hongkong	21,422,000	34,826,000
China	6,126,000	224,000
British India	5,115,000	8,902,000
Great Britain	11,668,000	3,648,000
Germany	4,149,000	746,000

The imports of the United States from Siam in the fiscal year 1907-8 were valued at \$51,858, and the exports of the United States to Siam, \$392,663. Almost the entire oversea trade passes through Bangkok.

COMMUNICATION. In 1907 the ports of Siam were entered by 793 ships of 731,988 tons, and cleared by 790 ships of 734,755 tons. The merchant marine in 1907 consisted of 16 steamers, of 2559 tons, and 112 sailing vessels and junks, of 10,789 tons. The length of State railways in 1907 was 482 miles; of companies' lines, 66 miles. The line from Paknam to Pitsanuloke, 87 miles long, was opened in 1908; it forms a part of the State Northern Railway, and is being extended to Utaradit, 57 miles from Pitsanuloke. The line from Bangkok to Petrin, 40 miles, was opened in 1908. The length of telegraph line in 1907 was 7050 miles.

GOVERNMENT. The form of government is an absolute monarchy. The present king is Chulalongkorn I., who succeeded his father October 1, 1868. A Legislative Council, composed of Ministers of State and others appointed by the king, was created in 1895. The country is divided into 18 provinces, each under a High Commissioner, under whom are the governors of districts. The Laos, or Shan, states of the north, and the Siamese Malay states retain a certain measure of independence. They are administered by native Rajahs, but Commissioners with full powers of control are now sent regularly from Bangkok to most of these tributary states. Of late years the power of the Central Government has greatly increased at the expense of feudal and provincial independence, due mainly to the development of means of communication. The legal code and the administration of justice in the native courts have been somewhat modernized with the assistance of foreign advisers to the Ministry of Justice and Legislative Council. Consular courts exercise jurisdiction over their nationals, and an international court tries suits between foreigners and natives. The metropolitan police is under British-Indian officials, and the provincial gendarmerie is under a Danish inspector-general, assisted by a number of Danish instructors. The Finance Department has a British Financial Adviser, and numerous Europeans, particularly

British, are employed in the various administrative departments.

FINANCE. The budget for 1907-8 estimated the revenue at 50,261,170 ticals and the expenditure at 56,261,524 ticals. The principal sources of revenue were estimated as follows: Opium tax, 8,989,758 ticals; spirit tax, 4,132,963; lottery and gambling, 6,618,548; land and fishery taxes, 7,330,175; customs, 5,340,700; forests and mines, 2,200,338, posts, telegraphs, and railways, 4,337,345; capitation tax, 3,806,329. The opium, spirit, and gambling taxes are farmed. The gambling houses in the provinces have been suppressed, and the suppression of those in the capital depends upon the consent of the Treaty Powers to an increase of the customs tariff, in order to make up the loss in revenue from the gambling tax. The principal estimates of expenditure were: Civil list, 7,000,000 ticals; war, 14,231,620; local government, 3,741,452; worship and instruction, 1,475,307; public works, 3,570,570; agriculture and mines, 3,505,435. The national debt amounted in 1908 to £4,000,000, contracted mainly for railways. The paper currency on March 31, 1907, was 15,209,170 ticals.

ARMY AND NAVY. Military service is obligatory in many of the provinces between the ages of 18 and 40, active service being required for 2 years with the colors, then 10 years in the first, and 10 years in the second reserve. It is intended to extend this system to the rest of the kingdom. Numerous exemptions are allowed, as in the case of priests, civil officials, students, orphans, slaves, uncivilized tribes, etc. The peace strength of the army is about 1000 officers and 20,000 men. The main reliance is the marine infantry, recruited from the marine provinces, which numbers 15,000 men of all grades, with an additional 5000 in reserve. Every effort is being made to increase the army and improve its drill and efficiency. The navy consisted at the beginning of 1908 of 1 unprotected small cruiser, of 2440 tons, and 7 gunboats of 4110 tons. Forts at Paknam protect the mouth of the Menam.

SIERRA LEONE. A British colony and protectorate in West Africa. The colony is along the coast, with an area of 4000 square miles and a population (1901) of 76,655 (444 Europeans). The protectorate, extending inland for 180 miles, has an area of 30,000 square miles and a population of 950,000. Freetown, the capital, has the best harbor on the West African coast and a population (1901) of 34,463. The products include palm-kernels, palm-oil, kola nuts, earth nuts, india rubber, rice, gums, wax, etc. Ramie is cultivated on a comparatively large scale. Ginger, hitherto confined to the colony, has been introduced into the protectorate, where the crop proved of better quality. The export of cotton in 1907 was 13,006 pounds, against 87,805 pounds in 1906. The total imports in 1907 amounted to £988,022; the total exports, £831,259, of which £675,544 were domestic exports. The leading imports were: Cotton goods, £250,846; provisions and foodstuffs, £87,291; beverages, £70,243; coal, haberdashery, hardware, and tobacco. The leading exports of domestic produce were: Kola nuts (1374 tons), £113,674; palm-kernels (34,942 tons), £447,801; palm oil (615,997 gallons), £51,154; rubber (73 tons), £22,480. The

imports from and exports to Great Britain amounted to £708,765 and £195,159 respectively; Germany, £111,103 and £350,720; British West African colonies, £22,745 and £47,719; foreign West African colonies, £68,635 and £77,652; United States, £25,743 and £370. There are over 226 miles of railway. The revenue and expenditure in 1907 were £359,104 and £345,567 respectively. The Governor in 1908 was H. E. Leslie Probyn.

SILK. The year 1908 in the silk industry in America as well as abroad was in striking contrast to 1907, taken as a whole. In the United States, both in manufacturing and in trade in raw and manufactured silk, there was a period of intense depression following the panic of 1907. The number of new factories to be erected was the smallest in six years, and where prices for raw silk in the previous year had been the highest on record, represented by quotations in April of \$6.10 and \$6 a pound for Double Extra Kansai and Sinshiu No. 1 filatures, two widely used varieties, there were recorded in the same month of 1908 the lowest prices in years, namely, less than \$3.70 and \$3.40 for the same varieties. As silk is essentially a luxury it is one of the first commodities to feel the effects of hard times, and it was the general belief, strengthened by the gradual improvement in trade conditions, that the depression, in so far as it concerned the American silk industry, was of a temporary character, and that the manufacturing business was soundly established and in good shape, despite the small growth in new mill construction for the year. The total number of new mills since 1903 has been as follows: 1903, 58; 1904, 49; 1905, 53; 1906, 36; 1907, 51; 1908, 32. The new mills of 1908 were constructed in Connecticut, Missouri, New Jersey, New York, Pennsylvania, and Rhode Island and their respective distribution is shown by the accompanying table.

NEW SILK MILL CONSTRUCTION, 1908

	Conn.	Mo.	N. J.	N. Y.	Penn.	R. I.
Braids	1	..	..	..	..	1
Broad silks..	1	1	8	1	3	1
Ribbons	1	..	4	1	4	..
Silk throwing	..	..	1	1	1	..
Gloves	..	..	..	..	1	..
Silk thread...	..	..	..	..	..	1
Total.....	3	1	13	3	9	3

The status of the industry at the end of 1908 may be appreciated by the fact that according to *Davison's Silk Trade* there were in the United States 1118 firms or corporations engaged in the manufacture of silk as compared with 1180 at the close of 1907, and of these 350 were broad silk mills as against 338 in 1907, 141 were ribbon plants as against 133 in 1907, and 151 were throwing plants as against 147 in the previous year. The depression of the United States was shared by Europe and the East, and the production of Japan in particular was put upon a very weak market. There was a considerable demand in the latter half of the year for the better grades from Italy to be used in making satin piece dyes. The accompanying table gives the estimates of the Amer-

ican Silk Association for the crop of 1908-9 as compared with that of previous years:

Crop of (in Kilograms)	1908-9 (Estimated) Kg.	1907-8 Kg.
Europe	5,805,000	5,917,000
France	655,000	662,000
Italy	4,720,000	4,870,000
Austria	360,000	360,000
Spain	70,000	75,000
Levant	2,550,000	2,931,000
Asia: Total Production Ex- ported*	11,690,000	11,991,000
China, Shanghai.....	3,150,000	3,100,000
Canton	1,900,000	2,250,000
Japan, Yokohama	6,300,000	6,301,000
Bengals	340,000	340,000
Total, Kilograms	20,045,000	20,839,000
Tussah, Raw	1,000,000	902,520
Grand Total, Kilograms..	21,045,000	21,741,520
Grand Total, Reduced to Pounds	46,395,807	47,931,311

*The production of raw silk in China is an absolutely unknown quantity.

†Excludes Tussah silk.

The figures for Asiatic silks are the actual shipments from the various countries of production, viz.: China, Canton, Japan, etc.

The estimated supplies for 1908-1909 are the probable crops for the season, plus the stock on hand carried over from the previous season.

The domestic consumption of Japan is estimated to be approximately 40 per cent. of her production. The remaining 60 per cent. which is exported, being, say, 6,301,000 kilos in 1907-1908 season, the total production equals the export divided by 60 and multiplied by 100, which therefore amounts to 10,501,666 kilos.

The domestic consumption of China is estimated to be 55 per cent. of her production in average years. The remaining 45 per cent. which is exported, being 6,252,520 kilos; from Shanghai, Canton, and Tussah, in 1907-1908 season, the total production equals the export divided by 45 and multiplied by 100, which therefore amounts to 13,894,488 kilos.

The silk industry in the latter half of 1908 was greatly aided by the fact that fashion prescribed an increased use of silk fabrics and styles of women's dress that could only be realized in silks and satins so that a particular impetus was given to business along with the general trade recovery. In the discussion of the revision of the tariff the silk manufacturers asked that a specific duty be substituted for the ad valorem duty of the Dingley tariff. In the conditioning, that is drying to obtain the absolute weight, there was a demand for more scientific methods and skill and during the year the development of laboratories and establishments to improve the technique of silk treatment was quite a feature. A combination of the skein silk dyeing interests occurred early in December and the National Silk Dyeing Co., with \$10,000,000 capital stock, was formed. The new corporation, which included the largest plants in the trade with two exceptions, aimed to secure greater economy in the purchase of materials and the execution of orders, but otherwise no changes in the operation and management of the constituent plants were contemplated.

SILVER. The silver-mining industry of the United States during 1908 presented a far less

satisfactory condition than that of gold owing to the low prices for silver, lead, copper, and zinc, and as a result there was a substantial decrease, 8.3 per cent. in quantity and 25.8 per cent. in value, from the production of 1907. Furthermore the output for 1908, with the single exception of that of 1894, was the smallest since 1889. During the year the large smelters of Utah and Colorado were partly closed, and partly operated on a reduced capacity. Important mines in Leadville, Aspen, Creede, and Park City, operating on low-grade ores, found it very difficult to make profits on ore of the same grades that yielded well in 1906 and 1907, and were therefore compelled to reduce their output or to close. Owing to temporary lack of demand from India, where purchases during past years have been large and have steadily increased, the silver market declined almost steadily from about 56 cents per ounce in the early part of the year, to about 48 cents in December, the average price being about 53 cents. The year closed with New York prices at 50 cents. The extraordinary heavy production of the cobalt district in Canada, which for 1908 exceeded that of any one State in the United States and was believed to approximate 17,000,000 ounces, undoubtedly contributed to the depression in the price of silver. The statistics of the Geological Survey for the mine production in 1907, amounted to only 52,500,104 fine ounces, whereas the refineries and the mints reported 56,514,700 fine ounces, so that the shortage in the mine output for the last months of 1907 was naturally reflected in the refinery returns for 1908 and was accentuated by still further reduction in the production of the mines. The production of silver in 1908 from domestic sources was estimated by the Director of the Mint at 51,798,053 fine ounces, valued at \$27,452,861.

AVERAGE PRICES OF SILVER

(Engineering and Mining Journal)

Month.	New York		London	
	1907.	1908	1907	1908
January	68.673	55.678	31.769	25.738
February	68.835	56.000	31.852	25.855
March	67.519	55.365	31.325	25.570
April	65.462	54.505	30.253	25.133
May	65.971	52.795	30.471	24.377
June	67.090	53.663	30.893	24.700
July	68.144	53.115	31.366	24.514
August	68.745	51.683	31.637	23.858
September	67.792	51.720	31.313	23.877
October	62.435	51.431	28.863	23.725
November	58.677	49.647	27.154	22.988
December	54.565	48.769	25.362	22.493
Year	65.327	52.864	30.188	24.402

New York, cents per fine ounce; London, pence per standard ounce.

The accompanying table giving the statistics of the United States Geological Survey and the Director of the Mint shows that only in Nevada was there a marked increase in silver production in 1908, and that in addition Montana and Arizona were the only other States to show any increase at all over 1907, which was due to the large output of copper ores containing silver. Heavy decreases occurred in Colorado, Idaho, and Utah, due in the case of the first two to poor conditions and low prices in the silver-lead industry and in Utah to difficulties connected with the closing of three smelters by the Federal Court on account of smoke damage.

The exports of silver from the United States for the calendar year ending December 31, 1908, were \$51,837,671 as compared with \$61,625,866 in 1907. The imports for the same periods were \$42,224,130 and \$45,912,360, respectively, or an increase of exports over imports of \$9,613,541 in 1908, and of \$15,713,506 in 1907.

PRODUCTION OF SILVER IN THE UNITED STATES, 1907-1908

Source	1907 (a) Silver		1908 (b) Silver	
	Fine oz.	Value (c)	Fine oz.	Value
Alabama	800		1,815	\$962
Alaska	179,300	118,400	201,988	107,053
Arizona	2,901,100	1,916,000	3,046,137	1,614,452
California	1,560,000	1,049,400	1,823,588	966,501
Colorado	11,495,400	7,587,000	10,161,318	5,385,498
Georgia	700	500	186	98
Idaho	7,888,400	5,204,300	6,289,585	3,333,480
Illinois	2,900	1,900	352	188
Maine			316	167
Michigan	331,300	218,700	232,184	123,057
Minnesota			9	5
Missouri	25,300	16,700	25,000	13,250
Montana	11,129,600	7,345,500	11,518,913	6,105,024
Nevada	8,280,500	5,465,100	9,322,828	4,941,099
New Hampshire			3,482	1,845
New Mexico	599,500	395,700	372,950	197,663
North Carolina	25,200	16,000	16,090	8,527
Oregon	96,000	63,400	109,640	58,109
Philippine Islands	100	100	3,700	1,961
Porto Rico			3	1
South Carolina	100	100	102	54
South Dakota	100,600	70,400	197,996	104,938
Tennessee	58,300	38,500	50,876	31,734
Texas	305,300	201,500	461,715	244,709
Utah	11,406,900	7,528,500	7,718,872	4,091,002
Vermont	3,800	2,500		
Virginia	200	100	8,392	4,448
Washington	84,000	55,400	68,175	36,132
Wyoming	1,600	1,100	634	336
Other States			152,207	80,670
Total	56,514,700	\$37,290,700	51,798,053	\$27,452,861

(a) U. S. Geological Survey.

(b) Director of the Mint, Preliminary Estimates.

(c) The commercial value of fine silver in 1908 averaged about 53 cents per ounce.

The commercial value of fine silver in 1907 averaged about 66 cents per ounce.

PRODUCTION OF SILVER IN THE WORLD, 1905-1907

		1905		1906		1907	
		Oz. fine	Value	Oz. fine	Value	Oz. fine	Value
North America	United States....	56,101,600	\$33,859,169	56,517,900	\$37,748,757	58,850,615	\$38,445,226
	Canada.....	5,974,875	3,605,957	8,568,685	5,723,110	12,750,004	8,329,205
	Mexico.....	65,040,865	39,254,309	68,500,000	45,751,835	65,900,000	43,514,896
	Central America.....	1,361,449	821,697	670,000	447,500	685,000	447,390
South America	Argentina.....	70,000	42,245	70,000	46,754	68,000	44,422
	Bolivia.....	6,600,000	3,983,100	6,650,000	4,441,602	6,750,000	4,409,573
	Chile.....	850,000	512,975	850,000	567,724	875,000	511,211
	Colombia.....	1,000,000	603,500	980,000	654,552	950,000	620,606
	Ecuador.....	40,000	24,140	40,000	26,716	40,000	25,131
	Peru.....	5,000,000	3,017,500	5,100,000	3,406,341	5,250,000	3,429,668
	Uruguay.....	1,093	660	1,000	668	1,000	653
Europe	Austria.....	1,279,633	772,840	1,270,000	848,246	1,349,862	881,824
	Hungary.....	525,723	317,284	515,000	343,974	424,489	277,306
	France.....	617,955	372,948	19,500	13,024	225,918	147,585
	Germany.....	12,535,238	7,565,267	11,649,160	7,780,590	12,439,896	8,116,610
	Greece.....	855,912	516,500	820,000	549,686	755,525	493,563
	Italy.....	801,917	438,973	800,000	534,328	695,051	454,056
	Norway.....	257,200	155,225	170,000	113,545	175,475	114,633
	Russia.....	172,912	104,356	120,241	80,310	166,183	108,562
	Spain.....	3,774,989	2,278,281	3,825,000	2,554,756	4,099,125	2,677,835
	Sweden.....	20,923	12,629	21,500	14,360	32,375	21,150
	Turkey.....	572,342	345,420	550,000	367,351	522,438	341,293
Asia	United Kingdom.....	159,689	96,376	162,500	108,535	138,245	90,311
	Dutch E Indies.....	182,889	110,386	185,000	12,356	190,000	124,121
	Japan.....	2,409,879	1,454,437	2,431,447	1,623,987	2,431,447	1,623,987
	Australasia.....	14,362,639	8,667,853	13,519,410	9,029,749	17,516,433	11,442,960
	Africa.....	619,620	374,154	495,000	330,615	510,000	333,158
	Other countries.....	50,000	30,176	50,000	33,396	50,000	32,663
Totals.....		181,338,362	\$109,382,829	184,552,343	\$123,152,367	193,542,351	\$127,520,029

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The average commercial value of silver for 1906 was 66.791 cents per ounce; for 1907 it was 65.327 cents per ounce.

SINGAPORE. See STRAITS SETTLEMENTS.
SINGLE PHASE ELECTRIC RAILWAYS.
 See ELECTRIC RAILWAYS.

SKATING. The national championships were contested for at Verona Lake, N. Y., on February 22. W. Sutphen, Brooklyn, N. Y., won the mile in 3m. 11.2-5s. and the three-mile in 10m. 38s. The one-mile novice race was won by G. V. Conniff, New York, in 3m. 38s., E. A. Leach, Newark, N. J., won the two-mile handicap, and the Verona Lake Skating Association won the two-mile relay. At the Eastern amateur championship meeting at Orange Lake, N. Y., February 12, E. Lamy, Saranac Lake, won the quarter-mile, half-mile, one-mile and five-mile races. Lamy's time in the quarter, 35 1-5s, equalled the record. The international indoor championship events were held at Pittsburg, February 5-6, E. Lamy winning the quarter-mile in 40s., the one-mile in 2m. 44s., lowering the record by 9s., and the two-mile in 6m. 11.4-5s. F. Robson, Toronto, won the half-mile in 1m. 19.4-5s. In the five-mile race A. Anderson, Chicago, lowered the old record of 15m. 9s. to 15m. 7.3-5s. The amateur championships of Europe were decided at Klagenfurt, Austria, in February. M. Osholm, Stockholm, won the 500-metre race in 47 1-5s., the 5000-metres in 9m. 1 1-5s., and the 10,000-metres in 18m. 24s. O. Mathieson, Christiania, won the 1500-metres in 2m. 29.2-5s. At the international championships at Davos, Switzerland, two new world's records were made, Wikander of Helsingfors winning the 500-metres in 44 2-5s., and O. Mathieson the 1500-metres in 2m. 20 4-5s.

SKYSCRAPERS. See ARCHITECTURE and TALL BUILDINGS.

SLAUGHTERING. See MEAT and MEAT INSPECTION.

SLEEPING SICKNESS, OR TRYPANOSOMIASIS. This disease originally endemic in a small area on the West African coast, by 1908 had spread over a great part of the continent. From the Sudan to the Cape, and from the Congo States to German East Africa, immense districts had been devastated. The disease attacks the natives generally, but the white man is by no means immune. It is due to an animal parasite, *Trypanosoma gambiense*, discovered by Nepren in 1898, and is conveyed from animal to animal and from animals to man by the tse-tse fly (*Glossina palpalis*). Preventive measures on a great scale were instituted by the English government and to a less extent by the French and Germans, all of whom, during 1908, were working under a mutual agreement. Publications, both scientific and popular, were being disseminated, and in the centres of infection hospitals, laboratories and experiment stations were being established. Villages were moved away from the river banks, infected populations were prevented from migrating, the sick were segregated in lazarets, from which healthy natives were kept away. Everywhere the colossal undertaking was being pushed rigorously. Atoxyl, an arsenic derivative which, it was hoped, would prove a specific against this disease, has not been satisfactory, because the trypanosomi soon become immune to its action. See UGANDA.

SMALL ARMS. See MILITARY PROGRESS.

SMALLPOX AND VACCINATION. The value of vaccination as a prophylactic against smallpox was illustrated anew by the experiences of the United States in its insular possessions, Porto Rico and the Philippines. After the possession of Porto Rico passed over to the United States, during the epidemic of smallpox the government performed over 800,000 vaccinations, and

in four months the disease was abolished. In the annual report of the chief of the sanitary department in the Philippine Islands it was shown that in seven provinces there had been for a number of years an annual death rate of 6000 from smallpox, an estimated number of 25,000 to 30,000 cases in all. In the year following the institution of general vaccination in those seven districts there were no deaths whatever from this disease. At a meeting of the Philadelphia County Medical Society, Schamberg reviewed the history of smallpox. He said that the disease was as prevalent among the people of Europe in the eighteenth century as measles is at the present time. The mathematician, Daniel Bernouilli, calculated that fifteen millions of human beings died of smallpox in 25 years. Vaccination has totally changed the age period of smallpox. It is exceedingly rare for a successfully vaccinated child under five years old to die of the disease, and such deaths are uncommon in children under ten who have been properly vaccinated. It is a noteworthy fact that the decline in the death rate of smallpox, as shown in the carefully kept records of England and Sweden, has been limited to persons below the age of 15 years, i. e., the age when the preventive effects of a first vaccination have not worn off. See VITAL STATISTICS.

SMITH, CHARLES EMORY. An American journalist and public official, died in Philadelphia on January 19, 1908. He was born in Mansfield, Tolland County, Conn., on February 18, 1842; graduated at Union College in 1861, became a member of General Rathbone's staff in that year, and for two years was in the recruiting branch of the service. In 1865 he became editor of the *Albany Express*, a position which he held until 1870, when he became associate editor of the *Albany Journal*, where he remained for ten years, during the last four years as editor-in-chief. Meanwhile he had been a delegate to several of the Republican State Conventions, and to the National Republican Convention of 1876, for which he wrote much of the platform. He became editor of the *Philadelphia Press* in 1880, and held that position during the remainder of his life. He was minister to St. Petersburg in 1890-92, and in this position directed the distribution of American contributions of more than \$100,000 for the relief of the famine in Russia during those years. He took an active part in the presidential campaigns of 1892 and 1896, drafted much of the Republican platform in the latter year, and became postmaster general in President McKinley's cabinet in 1898. During his administration the rural free delivery was organized. Soon after President McKinley's death he resigned, but remained in charge of the department until his successor took charge, in January, 1903.

SMITH, JOHN WALTER. An American politician, was elected to the United States Senate as a Democrat by the Maryland Legislature on January 15, 1908, for the term beginning March 4, 1909. After the death of Senator William P. Whyte, he was, on March 24, elected to serve out the unexpired term to March 3, 1909. He was born in Snow Hill, Md., on February 5, 1845, and has had an active career in lumber and other business and politics. He was a State

Senator from 1889 to 1899, member of Congress in 1899, and Governor of Maryland from 1900 to 1904. See MARYLAND.

SMITH, WALTER CHALMERS. A Scotch poet and minister, died on September 19, 1908. He was born in Aberdeen on December 5, 1824, and was minister successively of Presbyterian churches in London and Glasgow, and of the United Free High Church in Edinburgh. In 1893 he was chosen moderator of the United Free Church in Scotland. His writings include: *Bishop's Walk* (1861); *Olrig Grange* (1872); *Kildrostan* (1884) and *A Heretic* (1890). His collected works were published in 1903.

SMITH COLLEGE. An institution for the higher education of women at Northampton, Mass., founded in 1875. In 1907-8 the attendance was 1482, and in the autumn of 1908, 1566. Arrangements have been made for the erection of additional buildings, including an assembly hall and two dormitories. The endowment of the college is \$1,300,000, and its annual income approximately \$200,000. The president is the Rev. L. C. Seelye.

SMITHSONIAN INSTITUTION. An institution established in 1846 in accordance with the provisions of the will of James Smithson, an Englishman, who bequeathed his fortune to the United States for the increase and diffusion of knowledge. The present Institution has administrative charge of several branches, which were developed by its early activities and are now supported by Congressional appropriations. These are the National Museum, the International Exchange Service, the Bureau of American Ethnology, the National Zoological Park, the Astrophysical Observatory, and the Regional Bureau for the International Catalogue of Scientific Literature. The Smithsonian issues three regular series of publications: *Contributions to Knowledge*, the *Miscellaneous Collections*, and an *Annual Report*. The *Proceedings and Bulletins* of the National Museum, the *Reports and Bulletins* of the Bureau of American Ethnology, and the *Annals* of the Astrophysical Observatory are issued under the auspices of the Institution. Investigators are aided by grants for original research to the extent of the funds available for the purpose. In 1907-1908, the Institution conducted researches in geology, paleontology, meteorology and botany; it appropriated funds for a recalculation of the atomic weights; aided an investigation on the properties of matter at the temperature of liquid air; from its Hodgkins Fund it furthered studies on the relation of the atmosphere to the welfare of man, and, in connection with the International Congress of Tuberculosis, offered a Hodgkins prize for the best essay on the relation of atmospheric air to tuberculosis, its cause, prevention, and cure. For fifteen years it has supported a table in the Naples Zoological Station and offered its facilities to biologists prepared to avail themselves of this opportunity to conduct original research. It was announced in December, 1908, that the party which was to accompany President Roosevelt on his trip to Africa would be acting as representatives of the Institution, which would defray the expenses of its members. The income of the Institution proper during the year

1907-1908 was \$63,372.90. The Secretary of the Institution is Charles D. Walcott; Assistant Secretary, in charge of the United States National Museum, Richard Rathbun. See NATIONAL MUSEUM.

SMOKE PREVENTION. Efforts to keep the atmosphere of American cities free from smoke continued to be made in 1908. The most intelligent and effective of these efforts were directed towards the selection of new, and the improvement of old, boiler furnaces, and towards the education or control of firemen, all to the end that coal may be properly burned. The University of Illinois, at Champaign, issued a bulletin on *How to Burn Illinois Coal Without Smoke*. This bulletin would apply equally well to similar soft coals from other sources. The substitution of electric for steam locomotives at great terminals, as was done at New York by the New York Central and the New Haven railroads, and as may be expected at a few other points, will aid materially in reducing a serious portion of the smoke nuisance in great cities. Electric equipment was proposed and in part accepted for the roads entering Chicago, and was under consideration at Boston. There were, however, strong reasons for believing that the change from steam to electric traction for railways, even at important terminals, would be slow for some years to come.

SNOW, FRANCIS HUNTINGTON. An American educator and scientist, died on September 20, 1908. He was born in Fitchburg, Mass., on June 29, 1840, and graduated at Williams College in 1862, and at the Andover Theological Seminary in 1886. He was professor of mathematics and natural science at the State University of Kansas in 1886, and of natural history in 1870-89, when he became president. In 1890-1901 he was chancellor of the university, and after 1901 he was professor of organic evolution, systematic entomology and meteorology. In 1885 the Kansas Legislature appropriated \$50,000 for a building, to be called Snow Hall, and to contain his collection of more than 22,000 insects, gathered by him in twenty-six expeditions to Kansas, Colorado, New Mexico, Texas and Arizona.

SOCIALISM. The extent to which compromise with other political parties is permissible, the question which has so often agitated Socialists, was a leading subject of discussion in 1908. In France and Germany it gave rise to bitter controversies and in the latter country threatened a permanent division in the ranks.

GERMANY. The persistence of the South German Socialist deputies in voting the budgets in the respective Diets of Württemberg, Hesse, Baden, and Bavaria brought down upon them the anger of their fellow Socialists north of the Main. Whether Socialists in the face of a capitalistic society should compromise with the enemy to gain their ends or maintain constantly an open war was the chief question of international Socialism, and had been discussed in all the congresses. The dominant Marxist element was opposed to all forms of compromise and opportunism and at the Congress of Lübeck in 1901 had insisted that Socialist members of the Landtags were bound in loyalty to refuse on principle, save in certain altogether exceptional cases, to vote the budgets. In South Germany, however, where a more democratic régime pre-

valled, the deputies of the Landtags had already gained a power that Prussian Socialists were far from possessing. It seemed absurd to them that after urging reforms they should refuse to vote the budgetary measures necessary to give them effect. At a recent meeting at Stuttgart they decided to disregard the Lübeck decision. The Central Committee of the party and its official organs, *Vorwärts*, and the *Leipziger Volkszeitung* were roused to a high pitch of indignation against this South German heresy and violation of party discipline. In spite of rebukes and warnings nine Socialist deputies in the Baden Diet voted the financial law in August, only two abstaining; and the Bavarian deputies in their turn voted the entire budget. The Baden Socialists defended their action on the ground that the measure for which they voted increased the wages of workmen. Herr Seglitz, one of the Bavarian deputies, justified the vote as in the interest of general culture and pointed to the progress of democracy in Bavaria as shown by the direct electoral right, the proportional system for election and the recognition of equal rights for Socialists. He declared that in voting the budget they did not assume responsibility for the government's policy. This was denounced in the severest terms in the orthodox press and at Socialist meetings in Berlin. On the other hand, a meeting at Nuremberg unanimously approved the action of the deputies, who moreover were sustained by their constituents. At the annual conference of the party no actual schism took place but it was evident that the two wings were growing further apart. The majority of northern delegates passed a vote of censure against the South Germans who voted the budget.

In 1907 the Prussian Socialists decided on a vigorous campaign for universal suffrage in the Landtag elections. On Jan. 10, 1908, Chancellor von Bülow announced his refusal of electoral reform and on Jan. 12 occurred a Socialist demonstration near the palace of the Landtag resulting in a conflict with the police. In spite of the obstacles which the three-class system of elections put in the way of Socialist representation, the Socialists won a notable success in the June elections and for the first time Socialist deputies were returned to the Landtag. See GERMANY, paragraphs on *History*.

FRANCE. In France the question of compromise with capitalism was raised in the case of M. Breton, a Socialist deputy belonging to the Broussist group who had voted the budget in spite of the decision of the Congress of Limoges against that course. On Jan. 19, the National Council in Paris decided to propose his exclusion at the approaching Congress of Toulouse, for violating his party faith by this act and by his advances toward the bourgeois political groups. M. Breton argued that a systematic refusal to vote the budget was not enjoined by Socialistic principles and that its effect was to deprive Socialists of all influence in the Chamber, and he pointed to the course of South German deputies in voting the budget, in spite of the decisions of congresses. Similar discussion arose a little later when the names of six Broussist deputies, including MM. Brousse and Breton, appeared on an appeal to the electors issued by the Combists in their endeavor to form a bloc. They were accused of giving up the principle of class combat, breaking faith with their party, and identifying socialistic

anti-militarism with anti-patriotism. "Peace among nations; war between classes," was expressly included in the manifesto of the National Council, which had declared that in electioneering the party must in the first instance act independently and that secondarily its course must be guided by republican interests, but it must openly proclaim the principle of class conflict. Hard and fast lines, however, could not be drawn. Alliances with Radicals had been authorized. In the weakness of the party coalitions were unavoidable. The International Congress of 1900 had forbidden alliances that carried with them a fusion of tactics and policy, but permitted transitory alliances that reserved autonomy.

The May municipal elections went on the whole decidedly against the Socialists. The official journal of the party, the *Socialiste*, said on May 31, "The positive check which we have just suffered shows that not only the great part of the French public remains closed to socialism, but also that we have not even won over the industrial workers of the large cities. That is the fact that plainly appears from the last ballots. We have been beaten and seriously menaced in districts almost exclusively industrial. . . . There are urgent reasons for believing that concentration against the Socialists will strengthen as the organization of the proletariat gains in power and activity." The elections showed a tendency on the part of the other parties to unite against the Socialists. The defeat added strength to the charge of the trades unionists that parliamentary Socialism played an inferior rôle.

May 1 passed off quietly, despite the agitators in the Confederation of Labor (see FRANCE, *History*; also STRIKES and TRADE UNIONS), who had caused the government grave anxiety. The programme of the Confederation of Labor divorces it absolutely from parliamentary socialism. It opposes action in Parliament or elections, favoring only the direct action of the working class, looks to a revolutionary strike, and insists on complete autonomy. May 1 was the occasion of some comparisons between the existing conditions and those of 19 years before when the anniversary of the Revolution was celebrated. Then French Socialists were only a handful and the workmen had hardly begun to form unions. Now France counted over a million Socialist votes and 800,000 union workmen; Germany three and a quarter millions of Socialists and two millions enrolled in the unions; Austria under the new franchise had 87 Socialist deputies, and similar progress was shown in other countries.

ENGLAND. The Labor party, which had 31 members of Parliament, had refused until 1908 to commit itself as a body to Socialist principles. The eighth annual conference of the Labor party was held in January at Hull, and at length it definitely pronounced its socialistic aims. By a vote representing a popular majority of 541,000 to 469,000, it carried the following resolution: "That in the opinion of this conference the time has now arrived when the Labor party should have as a definite object the socialization of the means of production, distribution and exchange, to be controlled by a democratic state in the interest of the entire community, and the complete emancipation of labor from the domination of capitalism and landlord

ism; with the establishment of social and economic equality between the sexes." In June, 1908, the Federation of Miners voted for affiliation with the Labor party, which thereby gained thirteen members of Parliament, making a total of 44. The Independent Labor party, of which Mr. Keir Hardie was the first president, forms the Radical wing of the Labor party and has taken an active part in its councils. At its congress at Huddersfield it declared for the right to labor; for the nationalization of land with extensive expropriation in the meanwhile, and the application of the earnings of municipal enterprises to the purchase of land; and against the sweating system. It protested against the *entente* with Russia and declared that in view of the naval rivalry between Germany and Great Britain workmen of both countries should oppose any increase of the naval budget. It discussed the case of Mr. Victor Grayson, a candidate of the Independent Labor party and the first member returned to Parliament as a Socialist. It was a question of his sitting with the Labor party. He finally agreed to do so provided it did not preclude his acting in Parliament and elsewhere as a Socialist. The Social Democratic Federation, a Marxist body, doctrinaire, revolutionary, but of little weight in politics held its congress at Manchester. It refused to unite with the Labor party in spite of the efforts of its leaders, Mr. Hyndman and Mr. Quelch, saying it would amount to a desertion of its colors.

For the Socialist movement in the United States, see PRESIDENTIAL CAMPAIGN, and for an account of Socialistic activities in other countries in so far as they form an important part of the parliamentary record of the year, see the articles on countries.

SOCIAL SERVICE, AMERICAN INSTITUTE OF. A society organized in 1898 with the following purposes: First, to gather from all possible sources, facts of every kind which bear on social and industrial betterment; second, to interpret these facts by ascertaining their causes and effects, thus gaining their real significance; and third, to disseminate the resulting knowledge for the education of public opinion. Inquiries are invited from all who wish to profit by the experience of others. The service of the Institute is free. It has no endowment and depends for its support on those who are interested in it. The officers in 1908 were as follows: President, Josiah Strong, D. D.; Vice-President, Warner Van Norden; Honorary Director, James Dangerfield; Treasurer, John T. Perkins; Recording Secretary, Dr. Washington Choate. The headquarters of the Institute are at the Bible House, Astor Place, New York City.

SOCIETY OF CHEMICAL INDUSTRY. See CHEMISTRY, INDUSTRIAL.

SOCIOLOGY. At the third annual meeting of the American Sociological Society at Atlantic City in the December holidays, the general subject of discussion was "The Family in Modern Society." In a consideration of the topic, "How Do Home Conditions React Upon the Family?" Mrs. Gilman showed that the development of markets and factories has taken from housewives most of their previous economic functions. This change brings it about that women must become income earners outside the family or throw the entire burden of family

support upon the husband. Professor Zueblin maintained that woman's economic dependence prevents the attainment of a spiritual equality of the sexes. Dr. Rubinow held that, while married women of the middle class might be justified in seeking industrial employment, married women of the wage-earning class can best promote family welfare by attending strictly to home employment. In the topic, "Social Diseases and the Family," Dr. Morrow showed in an impressive manner the part played by venereal diseases in the dissolution of families and the increasing number of divorces. The discussion called out several suggested remedies. In a joint session with the American Economic Association (q. v.), in which papers on the Pittsburg Survey (See CONGESTION OF POPULATION) were presented, was made clear the almost complete dominance of the structure and life of the family by economic forces. On the question of the relation of higher education of women to the family, the consensus of opinion was that college education does not to any extent prevent the undertaking of the responsibilities of motherhood. But on the question of the effect of the entrance of women into industry, it was shown that reactions unfavorable to motherhood and to the stability of the family were developed. Another question discussed was, "Has the Freer Granting of Divorce Proved to Be an Evil?" This was considered from many sides, the various views arousing keen interest. In this discussion the welfare of the children and of society dominated that of the divorced persons.

The literature of the year included several general works from well known authors: *Sociologie: La structure générale des sociétés; T. III, Théorie des frontières et des classes*, by G. de Greer; *Sociologie: Untersuchungen über die Formen der Vergesellschaftung*, by G. Simmel; *Social Psychology: an Outline and Source Book*, by E. A. Ross; *The Physical Basis of Civilization: a revised version of "Psychic and Economic Results of Man's Physical Uprightness,"* by I. W. Heineman; *Rise of Man*, by C. R. Conder; *Essay on Western Civilization in its Economic Aspects*, by W. Cunningham (2 vols.); *Origin and Development of Moral Ideas*, vol. 2, by Ed. Westermarck; *The Process of Government: a Study of Social Pressures*, by A. F. Bentley. On the subjects of marriage and the family may be mentioned *Consanguineous Marriages in the American Population*, by G. B. L. Arner; *Ideal Family*, by W. M. Hatch; *L'évolution de mariage*, by P. Abram. Works mainly in the field of anthropology or ethnology but of interest to sociologists were: *Primitive Secret Societies: a Study in Early Primitive Societies*, by Hutton Webster; *Palaces of Crete and Their Builders*, by Angelo Mosso; and *World's People: Their Bodily and Mental Characters, Beliefs, Traditions, Political and Social Institutions*, by A. H. Keane. Other special works of interest were: *The Principles of Anthropology and Sociology in Their Relation to Criminal Procedure*, by M. Parmelee; *Aspects of Religion*, by E. G. Earp; *La loi*, and enlarged edition of a standard work; *Social Aspects of Religion*, by E. G. Earp; *La loi. Essai sur la théorie d'autorité dans la démocratie*, by M. Leroy. There should be mentioned also the *New Encyclopedia of Social Reform*,

edited by W. D. P. Bliss. Not the least important of the new publications of the year was the appearance in January of the first number of *The Sociological Review*, a quarterly, published by the Sociological Society of London, and edited by Professor S. T. Hobhouse. This periodical takes the place of the "Sociological Papers" published in previous years. It is expected to place the society on a more permanent basis and to make more readily available the results of sociological inquiry. It includes "Articles" on the scientific, philosophical and practical phases of sociology; "Discussions," and "Book Reviews."

For classified lists of periodical literature see guides to periodical literature, *The Economic Bulletin*, and *The American Journal of Sociology*.

SOILS. At the conference on the conservation of natural resources held on invitation of the President of the United States at the White House May 13-15, 1908, and at subsequent hearings of the National Conservation Commission appointed by the President as an outcome of the conference, special emphasis was laid on the great waste of the soil resources of the United States and the fundamental importance of soil conservation. The President in his opening address to the conference classed the soil among those resources "which can not only be used in such manner as to leave them undiminished for our children, but can actually be improved by wise use." James J. Hill, in an address at the conference, stated that by soil erosion "millions of acres, in some places to the extent of one-tenth of the entire arable area, have been so injured that no industry and no care can restore them. Far more ruinous, because universal and continuing in its effects, is the process of soil exhaustion." Notwithstanding the wide prevalence of such conditions, the value of the farm products of the United States in 1908 was, according to the report of the Secretary of Agriculture, \$7,778,000,000. It was true, however, that the growth of agricultural production to these magnificent proportions had been largely due to rapid extension of the productive area, and that, following the historical development of agriculture in a new country, extension of productive area had been followed by diminishing yields per acre. As the limit of profitable extension of the productive area and of soil exploitation was approached increased attention was given to improved methods of increasing the productivity of the soil with the result that during the ten years before 1908 there was a general increase in the production per acre of farm lands in the United States. The improvement of methods resulted in large measure from the more thorough knowledge gained during that time, through the work of the United States Department of Agriculture and of the agricultural colleges and experiment stations, and similar institutions, of the nature, possibilities and adaptations of soils. Investigation during 1908 made important contributions to such knowledge. The Bureau of Soils of the United States Department of Agriculture continued the systematic soil surveys begun in 1899, in anticipation of the necessity for more intensive handling of the farm lands of the United States. Up

to June 30, 1908, a total area of 157,078 square miles, or 100,529,920 acres in forty-four States and two territories had been surveyed and mapped. The surveys in 1908 included numerous studies of each important geographical and agricultural district and took account not only of the character of the soil but also of their crop adaptations. They were thus designed to be useful not only to those already on the land but also to those seeking land. Several States carried on local soil surveys, usually under the direction of their agricultural experiment stations, and an active interest was also shown in soil surveys in a number of foreign countries. Some of these were intended to aid in improving methods of handling and cropping soils, others to furnish a basis for land valuation and taxation.

The activity in soil surveying was accompanied by corresponding activity in scientific investigations on soil classification and on soil fertility and productiveness. These investigations confirmed the earlier conclusion that soil fertility can not be simply defined but is the resultant of the complex interplay of physical, chemical and biological processes still imperfectly understood. The Bureau of Soils and others reported important investigations on the nature of the soil solution and on the absorptive power and processes of soils.

SOLAR SYSTEM. See **ASTRONOMY.**

SOLOMON ISLANDS. A group of islands in the Pacific, east of New Guinea. For the German portion of the islands see **GERMAN SOLOMON ISLANDS.** The British protectorate includes Guadalcanar, Malaita, San Cristoval, New Georgia, and other islands, with an area of 8357 square miles, and 150,700 inhabitants (over 200 Europeans). Cocoanuts, pineapples, bananas, and sweet potatoes are produced. Imports and exports in 1907 were £49,252 and £51,602, respectively. Revenue and expenditure in 1907-8 were £7430 and £5923. The resident commissioner is subordinate to the high commissioner for the western Pacific. In 1908 he was Ch. M. Woodford.

SOMALILAND. See **BRITISH SOMALILAND, FRENCH SOMALILAND, AND ITALIAN SOMALILAND.**

SOUTH AFRICAN UNION. See **BRITISH SOUTH AFRICA.**

SOUTH AUSTRALIA. A state of Australia. Area, 903,690 square miles; population at the end of 1906, 383,829. Adelaide, the capital, had an estimated population of 175,641 on the same date. For details regarding population, education, production, etc., see **AUSTRALIA.** The executive power is vested in a governor appointed by the crown and acting through a responsible ministry. The Parliament consists of a legislative council of eighteen members, elected for six years upon the basis of a property suffrage, and a House of Assembly of forty-two members, elected for three years by universal suffrage. Women vote for both Houses. The Premier is T. Price.

The Northern Territory has an area of 523,620 square miles and 3586 inhabitants, exclusive of 20,000 aborigines. Palmerston, on Port Darwin, is the capital. In 1907 it was decided to transfer it to the Commonwealth government.

In December, 1907, the transfer of the Northern Territory to the Commonwealth was authorized. Parliament opened on July 23, 1908. The government announced a large financial surplus, and among other measures a comprehensive scheme for the reclamation by drainage of a great tract of swamp land in the southeast. Toward the close of the year Admiral Sir D. H. Basanquet was appointed to succeed Sir G. R. Le Hunte, as governor.

SOUTH CAROLINA. One of the South Central States of the American Union. Its area is 30,989 square miles. The population, according to a Federal estimate made in 1903, was 1,491,650.

MINERAL PRODUCTION. The chief mineral productions of South Carolina are associated with the mining of phosphate rock and its products. The value of phosphate products in 1906 was \$7,945,955. The value of the phosphate rock produced was \$1,118,375. Next in value are clay products, which in 1906 amounted to \$830,481. Stone was produced to the value of \$258,398; clay, \$175,351; gold, \$78,959; monazite, \$43,000; lime, \$34,719; marl, \$9450. Tin was also mined to the value of \$16,800, but this product was not shipped. The value of gas coke, gas and coal oil produced in 1906 was \$228,817. The total mineral production for 1906 was \$11,090,111. Included in this was mineral water to the value of \$348,744. Copper appears in the State, but it has not yet been discovered in sufficient quantities to be of commercial value. There are also deposits of iron in various places in the State, especially in Cherokee zone and the Anderson-Spartanburg zone, and the Abbeyville-York zone. Fullers' earth has been discovered within recent years and it is being mined in different portions of the State. Kaolin, fire-clay and peat are also found. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$2,305,203, as compared with a value in 1906 of \$2,800,108.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the figures of the United States Department of Agriculture, were as follows: Corn, 29,229,000 bushels, valued at \$26,598,000, from 2,073,000 acres; winter wheat, 2,535,000 bushels, valued at \$3,686,000, from 315,000 acres; oats, 4,020,000 bushels, valued at \$3,015,000, from 201,000 acres; rye, 58,000 bushels, valued at \$52,000, from 4000 acres; rice, 480,000 bushels, valued at \$508,800, from 20,000 acres; potatoes, 729,000 bushels, valued at \$802,000, from 9000 acres; hay, 81,000 tons, valued at \$1,199,000, from 65,000 acres; tobacco, 25,085,000 pounds, valued at \$2,508,500, from 29,000 acres. The cotton crop of 1908 was estimated at \$1,118,000 bales, which was an increase over the production of 1907, which was 931,726 bales. In the production of rice, the State is exceeded only by Texas and Louisiana. In the production of cotton it ranks fifth. The acreage of rice has greatly decreased in recent years. The number of farm animals by thousands on January 1, 1909, was estimated as

follows: Horses, 85,000; mules, 141,000; dairy cows, 139,000; other cattle, 225,000; sheep, 58,000; swine, 685,000. The wool clip in 1908 was estimated at 200,000 pounds, valued at \$45,240.

MANUFACTURES. Manufactures in South Carolina have had rapid development in recent years. Textile manufacturing is by far the most important of all the manufacturing industries of the State, the capital involved in 1907 lacking only \$10,000,000 as much as was invested in all manufacturing in 1905. The State leads all the Southern States in cotton manufacturing, both in capital and spindles, having nearly two and a quarter million dollars more capital than the second State, North Carolina. South Carolina also in this regard ranks second among all the States of the Union, Massachusetts only outranking it. The State ranks first in the manufacture of commercial fertilizers and fifth in each of the canning and hosiery industries. Lumber and timber products and planing mill products rank second in the State's manufacturing enterprises, and following in the order named are fertilizer manufacturing and cottonseed oil and cake manufacturing. Since 1905 there has been a marked tendency on the part of manufacturers to pay more attention to the smaller and diversified manufacturing industries. The textile industry has increased since 1905 to a remarkable degree, as notwithstanding the financial condition at the close of 1907, there were announced to be built and put into operation during 1908 18 new textile plants alone, 12 of which represented \$2,746,000 capital and over 100,000 spindles. Over 77,000 people were, in 1907, actually employed in manufacturing plants, and of these nearly 60,000 were in textile plants. In 1907 there were 25 fertilizer factories, whose plants were valued at \$2,801,937. During the period from 1905 there had been a remarkable growth in cotton manufacturing. Reports of statistics as gathered up to August 1, 1908, indicate the following figures: Capital invested, \$105,826,919; value of products, \$77,010,419; number of wage-earners, 56,223. Corresponding figures for 1905 were as follows: Capital invested, \$82,237,429; value of products, \$49,437,644; wage-earners, 37,271. In 1905, 9,769 children under 16 years of age were working in the cotton mill plants, while in 1907, owing in part to the operation of the child labor law and in part to the general desire of manufacturers not to employ children when possible to avoid it, the number had decreased to 8,121. During 1908 many of the largest cotton mills increased the capacity of their plants.

POLITICS AND GOVERNMENT. The disposal of the funds of the State dispensary, abolished in 1907, brought on a conflict between the Federal and State authorities. There are funds remaining amounting to about \$800,000, for which there are many claimants. A Winding Up Commission was appointed to investigate these claims, and distribute these funds, but before the task was accomplished Judge Jeter C. Pritchard, deciding the question to be a matter of Federal jurisdiction, appointed receivers, and on January 1 issued an injunction restraining the State Commission from disposing of the funds. This action was resented by Gov. Ansel,

and on March 5 he sent a special message to the Legislature recommending action "to protect the sovereignty of South Carolina in the matter of interference on the part of the United States Circuit Court." On March 12, Gov. Ansel came into direct clash with Judge Pritchard by notifying each of the thirty banks of the State that they would be held responsible by the State for the sums thus paid out. On September 15 the United States Circuit Court of Appeals sustained the opinion of Judge Pritchard, holding that the Eleventh Amendment prohibits a sovereign State from becoming a trader by buying or selling an article of common traffic in competition with the citizens of the country. Many prosecutions were undertaken against those who, it was alleged, had defrauded the State of millions of dollars in connection with the dispensary since its establishment in 1894. Warrants were issued for persons all over the United States, including many wholesale liquor dealers. Senator A. C. Latimer died on February 20, and on March 6, the Legislature elected Frank B. Gary, former Speaker of the House, to fill his unexpired term, which ended on March 4, 1909. On January 30, a State prohibition bill was defeated in the House of Representatives, and the same fate overtook the railroad rate bill in the Senate.

CONVENTIONS AND ELECTIONS. The Republican State Convention met at Columbia on April 28 and chose delegates to the National Convention. The delegates were not instructed. Resolutions were passed commending President Roosevelt's administration, and demanding equal accommodations for negroes on railroad trains. The delegates chosen at the Democratic State Convention were instructed to vote for W. J. Bryan. On August 25 Democratic primaries were held for nomination of State officers. Gov. Ansel was nominated for reelection. In a second primary held on September 8, E. D. Smith received the nomination for the Senate, to succeed the late Senator Latimer. In the election of November 3, the Democratic party carried the State by the customary plurality of about 60,000 votes. The detailed vote for the national and State tickets was as follows: Bryan, 62,288; Taft, 3963; Debs, 100; Hisgen, 42. Ansel was the only candidate for governor. He received 61,060 votes.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: Acts were passed establishing a separate and distinct department of the State government to be known as the insurance department, charged with the enforcement and execution of laws relating to insurance. Measures were passed for the teaching of physiology and hygiene in the public schools. The drinking of intoxicating liquors upon trains passing through the State was forbidden. The Board of Medical Examiners was authorized to revoke the licenses of any physician or surgeon who was guilty of felony or gross immorality, or who is unduly addicted to the liquor or drug habit, or who has suffered conviction for illegal practices.

STATE OFFICERS. Governor, M. F. Ansel; lieutenant-governor, W. S. McLeod; secretary of state, R. M. McCown; attorney-general, J. F. Lyon; treasurer, R. H. Jennings; comptroller-general, A. W. Jones; superintendent of educa-

tion, John R. Swearinger; adjutant-general, J. C. Boyd—all Democrats.

JUDICIARY. Supreme Court: Chief justice, Y. J. Pope; justices, C. A. Woods, Eugene B. Gary, Ira B. Jones; clerk, U. R. Brooks—all Democrats.

The State Legislature of 1908 was composed of 42 Democrats in the Senate and 124 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES** under the section *Congress*.

SOUTH DAKOTA. One of the North Central States of the American Union. Its area is 77,615 square miles. The population, according to a Federal estimate, was 487,354.

MINERAL RESOURCES. Gold is the only mineral product of importance in South Dakota. The aggregate value of all products in 1907 was \$4,938,829, a remarkable decrease over the value of the production of 1906, which was \$7,509,907. The production of gold which in 1906 was valued at \$6,841,469 fell in 1907 to the value of \$4,138,200. Silver was produced in 1907 to the value of \$70,400, as compared with the value of the product in 1906 of \$101,086. Among other mineral products are clay products, lead, lime, and stone. Decline in the prices of silver and the base metals did not affect the gold mines in the Black Hills in 1908, and a considerably increased production of gold was expected for the year. The Homestake mine was operated successfully and continuously with a greatly increased production, which probably will approach \$6,000,000. Several new mills were built during the year. The Director of the Mint estimates the gold production of the State for 1908, at \$7,690,294, against \$4,138,200 in 1907. This is a larger increase than is shown by any other State.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 57,677,000 bushels, valued at \$28,838,000 from 1,942,000 acres; spring wheat, 37,862,000 bushels, valued at \$34,833,000 from 2,958,000 acres; oats, 31,395,000 bushels, valued at \$12,872,000 from 1,365,000 acres; barley, 24,592,000 bushels, valued at \$11,558,000 from 928,000 acres; rye, 560,000 bushels, valued at \$330,000 from 32,000 acres; flaxseed, 5,885,000 bushels, valued at \$7,003,000 from 550,000 acres; potatoes, 4,050,000 bushels, valued at \$2,066,000 from 45,000 acres; hay, 765,000 tons, valued at \$3,136,000 from 51,000 acres. In the production of flax, the State ranks second, being surpassed only by North Dakota. In the production of barley it also ranks third, exceeding every other State except California and Wisconsin. A large area in the State is devoted to the cultivation of fruit. The number of farm animals by thousands on Jan. 1, 1909, was estimated as follows: Horses, 594,000; dairy cows, 643,000; other cattle, 1,397,000; sheep, 821,000; swine, 894,000. The wool clip for 1908 was estimated at 4,225,000 pounds, valued at \$823,875.

MANUFACTURES. Manufacturing is still important. The value of factory-made products increased from \$9,525,900 in 1900 to \$13,085,300 in 1905. The leading industries were credited with the following values in 1905: Flour and grist mill products, \$6,519,300; dairy products, \$2,182,600; and printing and publishing, \$1,221,780, these three values being respectively 103,

82 and 76 per cent. larger than corresponding values in 1900. Sioux Falls produced \$1,897,790 of the value of products.

FINANCE. The treasurer's report showed a balance of \$414,322 on July 1, 1907. The receipts during the fiscal year following were \$2,417,218, and the disbursements \$2,267,205, leaving a balance June 30, 1908, of \$564,335. There were thirty-eight different funds listed in the report, among which there were, besides the general fund and the common school fund, the twine plant fund, appropriated for the State Penitentiary, containing a balance of \$208,360; nine permanent school funds and fourteen local and endowment funds for as many different institutions. The principal source of revenue is the property tax. The State debt July 1, 1908, consisted of a floating indebtedness of \$250,000 of 5 per cent. revenue warrants and the balance of outstanding registered general fund warrants to the amount of \$133,184, making the total indebtedness \$383,184. The assessed valuation in 1907 was \$280,630,077, and the assessed valuation for the year 1908, \$283,696,268, showing a gain of \$96,000 in the past six years.

CHARITIES AND CORRECTIONS. The penal and charitable institutions of South Dakota consist of a School for the Blind at Gary; a State Training School at Plankinton; a School for Deaf Mutes at Sioux Falls; a School for Feeble-Minded at Redfield; a Hospital for the Insane, at Yankton; a State Penitentiary at Sioux Falls; a Soldiers' Home at Hot Springs. In addition to these, there is a hospital for insane Indians at Canton, established and maintained by the Federal government. The total expenditure for the support and maintenance of these institutions for the year ending June 30, 1908, was \$400,000.

POLITICS AND GOVERNMENT. There was no session of the State Legislature in 1908. On Jan. 10 the State Supreme Court handed down a decision which, in effect, declared that dealing in futures is not gambling. That section of the primary law which requires a fee was held invalid by the Supreme Court on April 11. The no-license area of the State was materially increased at municipal elections held on April 21. Sioux Falls voted for license, but Mitchell decided against saloons for the first time in 13 years. The most important political event of the year, from a national standpoint, was the abolition, by a vote of the people on Nov. 3, of the laws relating to divorce, which for years have made the State notorious. The new laws, made by the legislature of 1907, raise the period of residence from six months to a year, and require the hearings to be held at regular terms of court, instead of "in chamber." (See **DIVORCE**.) County local option was defeated at the general election Nov. 3 by a vote of 39,075 yes, 41,405 no. A law closing Sunday amusements or entertainments where a fee is charged was adopted at the same time by a vote of 48,378 yes, 48,006 no.

CONVENTIONS AND ELECTIONS. The Republican State Convention on April 7 instructed the delegates to vote for W. H. Taft for President, and the Democratic Convention, on the same date, took similar action in regard to W. J. Bryan. Republican State primaries were held on June 14 to nominate a candidate for United States Senator. Senator A. B. Kittredge and Governor Coe I. Crawford were the leading contestants. Senator Kittredge represented the

Republican organization of the State, while Gov. Crawford had the support of the so-called "Progressive" element. Crawford received a majority of about 2,700 votes. In the election of Nov. 3, the Republican party carried the State by a plurality of about 27,000. Robert L. Vessey, the Republican candidate for governor, was elected, with the entire State ticket. The detailed vote for national and State tickets was as follows: Taft, 67,352; Bryan, 40,223; Debs, 2,841; Chafin, 4,030. Vessey, 62,945; Lee (Dem.), 44,837.

OTHER EVENTS. On April 23, a tornado demolished 30 houses in the town of Valley Springs. Prairie fires caused much damage in various sections of the State in October, and on Oct. 14 the city of Dallas was saved from destruction only by extraordinary efforts on the part of its citizens. Lands in Tripp county in the Rosebud Indian Reservation were opened to settlers by the government in October. See **LANDS, PUBLIC.**

STATE OFFICERS. Governor, R. S. Vessey; lieutenant-governor, H. C. Shober; secretary of state, R. S. Polley; treasurer, George Johnson; auditor, John Herning; attorney-general, S. W. Clark; superintendent of education, H. A. Ustread; commissioner of lands, O. C. Dokken—all Republicans.

JUDICIARY. Supreme Court: Presiding justice, Dick Haney; justices, Howard G. Fuller and Dighton Corson; clerk, Frank Crane—all Republicans.

The State Legislature of 1909 is composed of 39 Republicans and 6 Democrats in the Senate, 95 Republicans and 9 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section *Congress*.

SOUTHERN NIGERIA. A British colony and protectorate in West Africa. Area, 77,260 square miles; population (1906), estimated at 6,000,000. The Anglo-German boundary commission finished its work in the latter part of 1907. There are about 1,000 Europeans. Lagos, the capital, had 41,847 inhabitants in 1901 (233 Europeans). Other large towns are: Abeokuta, 100,000, and Old Calabar, 15,000 to 20,000. There are a large number of small towns, with from 2,000 to 10,000 inhabitants. The natives cultivate maize, plantains, ground-nuts, yams and cassava. Cacao, coffee, and cotton are also grown. The cotton export in 1907 from the Lagos province was 4,089,530 pounds. The export of cacao in 1907 was 2,089,226 pounds, valued at £47,840, against 1,619,987 pounds, valued at £27,054, in 1906. Three-quarters of the cacao is grown in Lagos—1,525,089 pounds in 1907, while the Central Province yielded 1,936 pounds, and the Eastern Province 562,201 pounds. The foreign commerce includes largely that of Northern Nigeria. In 1907 the total imports amounted to £4,438,906 (£3,330,785 from Great Britain), and the total exports, £4,202,704 (£2,039,821 to Great Britain). The leading imports are cotton goods, spirits, unmanufactured tobacco, coopers' stores, hardware, cutlery, wearing apparel, rice, and provisions. The principal exports are palm oil, palm kernels, rubber and cacao. A railway has been constructed from Iddo Island to Horin, in Northern Nigeria, whence it is being extended to Jebba, on the Niger. It will ultimately connect with the line in Northern Nigeria, now in construction, from

Baro to Kano. There are over 1,125 miles of telegraph line. The colony is divided into three provinces: The Western Province, coinciding with the former colony of Lagos, the Central Province, and the Eastern Province. The revenue in 1907 was £1,459,554; the expenditure, £1,217,337. The governor in 1908 was Sir Walter Egerton.

SPAIN. A kingdom of the Pyrenean peninsula. Area, including the Canary and Balearic islands and small possessions on the north and west coast of Africa, 194,794 square miles. Population in 1900, 18,617,956; estimated Dec. 31, 1907, 19,712,585. In 1906 there were 137,853 marriages, 650,364 births, and 499,004 deaths; in 1907, 136,135 marriages, 646,472 births, and 472,015 deaths. Thus the excess of births in 1906 was 151,360, and in 1907, 174,457. The number of emigrants in 1906 was 126,771; in 1907, 130,640. The principal cities in 1900 were: Madrid, the capital, 518,656; Barcelona, 529,486; Valencia, 154,119; Seville, 145,254; Malaga, 111,930.

AGRICULTURE. The production of wheat in 1907 was 100,331,000 bushels, against 140,656,000 in 1906, and 92,504,000 in 1905. The exceptionally abundant crops of 1906 resulted in a largely decreased wheat import, which amounted to 116,733 tons in 1907, against 525,613 tons in 1906, and 884,986 tons in 1905. The importation of wheat flour also decreased from 59,820 tons in 1905 to 14,382 tons in 1906 and 62 tons in 1907. The maize crop of 1907 was 30,000,000 bushels, against 31,871,000 in 1906, and 21,300,000 in 1905. The rice crop of 1907 was 425,800,000 pounds, against 478,800,000 in 1906, and 394,600,000 in 1905. The oats crop of 1907 was 16,998,000 bushels, against 45,632,000 in 1906, and 22,250,000 in 1905. The output of sugar cane in 1907-8 was 120,000 tons; in 1908-9, 250,000 tons. The output of sugar beets in 1907-8 was 978,473 tons; in 1908-9, 760,000 tons. Spain is the second largest producer of olives in the world. About 3,500,000 acres are planted in olive trees, from which are produced, in a good average year, 1,400,000 tons of olives and 69,000,000 gallons of olive oil. The 1906 olive crop was poor, and the 1907 crop good. The exports of olive oil in 1905 were 75,302,475 pounds valued at \$5,901,448; in 1906, 41,605,470 pounds, valued at \$3,260,617; in 1907, 23,699,854 pounds, valued at \$1,857,355. The improvement in the 1907 crop is reflected in the export figures for the first five months of 1908, which were 34,987,544 pounds, against 11,855,364 pounds during the same period in 1907, and 27,790,320 pounds during the same period in 1906. Spanish olive oil does not reach the consumers' markets directly, but is shipped to France and Italy, where it is refined, mixed with other oils, and adapted to the demands of consumers. It is reported, however, that in Spain antiquated methods of handling olive oil are giving way to modern methods, and it is hoped that in the future Spanish oil may reach consumers directly. The wine production of 1907 was 464,640,000 gallons, coming after that of France and Italy.

MINING AND METALS. The total value of the mineral production of 1906 was 478,459,850 pesetas (1 peseta=19.3 cents), an increase of 60,475,324 pesetas over 1905. The coal production of 1906, including anthracite, bituminous and brown, was 3,240,979 tons. The following ores

were raised in 1907: Iron, 10,072,769 metric tons (9,448,533 in 1906); copper and cupreous pyrites, 3,376,041 tons (2,888,771 in 1906); magnetite, 33,916 tons; zinc (blende and calamine), 126,351 tons (170,383 in 1906); quicksilver, 26,632 tons; silver, 648 tons; lead, 276,021 tons; silver-lead, 15,541 tons (160,381 in 1906); sulphur, 26,632 tons; asphalt, 8,467 tons; antimony, 92 tons; tin, 294 tons; phosphorite, 3,078 tons; graphite, 2,473 tons; wolfram, 163 tons. The production of pig iron in 1907 was 380,580 tons—about the same as in 1906 and 1905; of copper, about 50,000 tons; of lead, 185,800 tons. About three years ago petroleum was discovered at the town of Villamartin, in the south of Spain. In March, 1907, a company was formed for exploration, and in Dec., 1907, there was struck abundant petroleum of the best quality, rich in benzine and in the lighter oils.

MANUFACTURES. During the year ending Aug. 31, 1908, the cotton industry employed 1,850,000 spinning spindles, and consumed 212,374 bales of cotton, of which 116,878 were American and 93,939 East Indian. The total imports of cotton in 1907 were 397,972 bales. The production of cane sugar in 1907-8 was 12,000 tons; in 1908-9, 22,000 tons. The production of beet sugar in 1907-8 was 115,000 tons; in 1908-9, 83,000 tons. The manufacture and sale of tobacco is a government monopoly, farmed to a company, which pays the government in postage and revenue stamps about \$35,000,000 a year. There are 27 match factories. The production and sale of matches is another government monopoly granted to a company.

COMMERCE AND COMMUNICATIONS. The imports for consumption and exports of domestic produce in 1907 amounted to 932,549,208 and 930,850,874 pesetas respectively, against 1,015,492,919 and 897,902,032 pesetas in 1906. The imports and exports of 1907 were classified as follows, in pesetas:

	Imports	Exports
Minerals, glassware, and pottery	94,851,000	182,898,000
Metals and their manufactures	53,896,000	150,276,000
Drugs and chemicals	108,098,000	35,185,000
Cotton and its manufactures	153,658,000	53,098,000
Other vegetable fibres and their manufactures	24,014,000	2,742,000
Wool and its manufactures	17,583,000	22,107,000
Silk and its manufactures	21,486,000	6,117,000
Paper, etc.	15,062,000	11,082,000
Timber and its manufactures	53,036,000	69,084,000
Animals and their products	86,962,000	55,897,000
Machinery	89,820,000	3,828,000
Foodstuffs and beverages	164,396,000	314,237,000
Precious metals	5,133,000	14,082,000

The trade with the principal countries in 1906 was as follows, in pesetas:

From and to	Imports	Exports
France	146,941,000	151,923,000
Great Britain	173,915,000	290,399,000
Germany	92,447,000	47,294,000
Netherlands	12,593,000	51,477,000
Belgium	27,938,000	30,329,000
Portugal	43,991,000	34,897,000
Russia	64,779,000	1,467,000
Italy	15,928,000	40,297,000
United States	140,773,000	35,164,000
Mexico	6,024,000	31,013,000
Cuba and Porto Rico	10,344,000	63,376,000
Argentina	35,697,000	43,718,000
Philippines	15,438,000	10,645,000
British India	45,340,000	1,893,000
Spanish colonies	8,723,000	14,144,000

The merchant marine in 1908 consisted of 504 steamers, of 423,000 net tons, and 304 sailing vessels (of 50 tons and over), of 28,700 tons. The railways, all privately owned, had a length of 9,195 miles in 1906; the telegraph lines, 20,749 miles.

FINANCE. The revenue and expenditure in 1907 were 1,079,830,297 and 1,009,443,561 pesetas respectively. The budget for 1908 estimated the revenue and expenditure at 1,040,680,477 and 1,023,168,614 pesetas respectively; for 1909, at 1,059,919,366 and 1,043,720,746 respectively. The principal estimates of revenue for 1908 were: Direct taxes, 450,520,068; customs, excise, and stamps, 368,700,000; State monopolies of tobacco, matches, explosives, and lotteries, 181,321,001; and of expenditure: Civil list, 8,900,000; public debt, 404,483,437; war, 157,578,324; marine, 46,963,830; pensions, 74,036,000; church, 41,231,389; education, 51,607,776. In the budget for 1909 the estimate for army and navy expenditures showed increases of 4,865,068 and 4,948,247 pesetas, respectively, over those for 1908. The public debt stood in Oct., 1907, at 9,499,020,575 pesetas. A loan of 160,000,000 pesetas in July, 1908, was oversubscribed 55 times. Since the war Spanish credit has greatly improved. Thus the perpetual internal 4 per cent. bonds, which were quoted at 60-63 in Jan., 1899, rose to 83-84 in July, 1908. Similarly the redeemable internal 5 per cent. bonds of the loans of 1900 and 1902, which were issued at 88-90, were quoted in July, 1908, at nearly 102.

ARMY. Military service is compulsory, but by conscription instead of being universal, with many exemptions including the privilege of paying a sum of money in lieu of personal service. Service in the active army, or first line, is for 6 years, of which 1 to 2½ years is spent in the ranks and the remainder in the reserve. Service in the second line, or second reserve, is for 6 years, with one month's training per year. There are 56 line regiments of infantry and 18 battalions of rifles; 28 regiments of cavalry and the royal escort squadron; 12 regiments of field, 1 of horse, 1 of siege, 3 regiments and 1 division of mountain, and 7 battalions of garrison artillery; and the usual auxiliary troops. The total strength of the field army is 220,000 of all grades; the second line troops number 90,000; the Guardia Civil 20,000; and the Carabineiros, 14,000. The total peace strength in 1908 was 80,000 officers and men. In 1908 Spain adopted the new pointed bullet now in general use in military countries, and passed a law authorizing promotion from the ranks in time of peace as well as in war.

NAVY. A law of Jan. 6, 1908, provided for the reconstruction of the navy, the material to be purchased abroad. The time limit for the presentation of bids for the rebuilding of the navy expired on Aug. 21; but no contract has yet been awarded. The effective navy consisted in 1908 of 1 second-class battleship, 9,900 tons; 2 armored cruisers, 14,000 tons; 1 large protected cruiser, 9,240 tons; 4 small protected cruisers, 14,050 tons; 13 gunboats, 6,410 tons; 5 destroyers, 2,100 tons; 8 torpedo boats, 780 tons, giving a total of 34 ships and 55,778 tons. A second-class cruiser of 5,871 tons was under construction.

GOVERNMENT. King Alfonso XIII was born May 17, 1886, after his father's death. The cabinet in 1908 was as follows: President, Ant. Maura; foreign affairs, Allende Salazar; wor-

ship and justice, Marquis de Figueroa; war, F. Primo de Rivera; marine, J. Ferrandiz; finances, A. Gonzalez Besada; interior, J. de la Cierva; public instruction, F. Rodriguez San Pedro; public works, agriculture, and industry, J. Sanchez Guerra.

HISTORY.

THE "TERRORIST BILL." For years Spain has suffered from anarchistic plots, of which Barcelona has been the centre. In 1907, seventeen bomb explosions took place there, killing five persons and wounding eighteen. At the beginning of 1908 anarchistic attempts appeared to be on the increase, and on Jan. 26, after the meeting of the Cortes, the minister of justice read in the Senate a bill dealing with anarchistic agitation containing very severe provisions and modifying radically the existing law for the suppression of the criminal use of explosives. It empowered the government to suppress summarily anarchistic journals and clubs, to close houses used as meeting places by suspects, and to banish anyone who in speech or writing advocated doctrines destructive of social order. It also enabled the government to suspend by decree the ordinary process of law in any district, and another clause declared it punishable by imprisonment to print any unofficial news in regard to anarchistic crimes. Both these features aroused vigorous opposition, leading to obstruction in the Cortes and public demonstrations. The clause dealing with the press created a special committee with plenary power for the suppression of the offending journals. It was attacked on all sides as an infringement of the liberty of the press. Meetings of protest were held, and the leading Madrid journals united to form a committee of defense. Meanwhile the Portuguese assassinations and the criminal attempts had strengthened the government's determination, and on Feb. 21 Premier Maura declared that the government would go ahead without regard to reprisals and in the face of opposition if necessary. At the same time two decrees established in each house concierges qualified to make arrests and required the local constabulary to cooperate. By gathering all senators absent on official business, the government finally put the measure through the Senate, but the opposition in the Chamber was intense. A commission was chosen by that body to study the question, and from May 13 heard opinions from all sides. The Press Defence Committee published lists of its accessions, including among others the Barcelona workingmen's association with 26,000 members. A mass meeting was held in June at the Princess Theatre at Madrid, where violent speeches were made. The government finally repealed the decree suspending constitutional guarantees in Catalonia. The parliamentary commission decided to suspend its report and adjourned *sine die*. A rupture between the Catalan deputies and the government occurred in June. The premier having refused their demand for the repeal of the law of 1906, which subjected attacks on the army to a military court, the Catalan deputies withdrew from the Cortes (June 13). The Catalan Assembly, however, while voting confidence in the deputies, required them to return and persist in the demand for the repeal of the law.

THE KING'S VISIT TO BARCELONA. At the time when terrorism in Barcelona was at its height the King resolved to pay a visit to the city on the occasion of the arrival of an Austrian squad-

ron. In spite of many protests against it as an act of rashness, he entered Barcelona on March 10. Fears for his safety proved to be unfounded. He was received with great enthusiasm and there was no sign of revolutionary disturbance. He walked about the streets almost without escort. The visit was thought to have done much to allay the extreme separatist and anti-dynastic spirit of Catalonia, as well as to win friends for the monarchy.

THE LOCAL ADMINISTRATION BILL. The Maura ministry had won a sweeping victory in the last elections, but in spite of this and in spite of the weakness of the Liberals and the divisions among the Republicans, it soon encountered a formidable opposition. Before the close of 1907 moderate Liberals, Republicans and Democrats had joined in demanding a large increase in the expenditure for public instruction through the creation of 2,500 primary schools. The government opposed it successfully on financial grounds, and the public instruction budget was voted without amendment. Opposition to the "Terrorist" bill, however, was, as indicated above, more serious, and so was the opposition to the government measure for local administration. This established the corporate vote in the "regional" elections, which was regarded by the Left as an attack on universal suffrage. A vigorous campaign against it was carried on by the Socialists, and meetings of protest were held at Bilbao, Valencia, and Logroño. It was before the Cortes for six months and as the bill contained over 400 articles to which 400 amendments had been offered by the beginning of April, with the prospect of offering 800 more, the discussion threatened to be interminable. In addition to the opposition to it as a curtailment of the individual suffrage, objection was made in financial circles to the unlimited right of creating and administering revenues which it conferred on the 8,000 communes. Finally the premier forced progress by withholding his consent to adjournment for vacation except on the condition that the Cortes should act on the first half of the measure at once and double its work and its sittings on the second half when it re-assembled. See WOMEN IN INDUSTRY.

THE MOROCCAN POLICY. On the whole, public opinion in Spain was thought to be favorable to cooperation with France in Morocco. Nevertheless there was much criticism in the press accusing the government of letting the country be dragged at the heels of France and duped by foreigners. The visit of M. Pichon, the French foreign minister to Madrid, in January, was viewed with suspicion in some quarters, though it was explained as merely a return visit for that paid in October, 1907, by the Spanish foreign minister to Paris. More grumbling was heard on the occupation of Mar-Chica by Spanish troops (Feb. 13), but the foreign office explained that under the treaty of 1894 with the Maghzen, such a course was legitimate, that it was a necessary and provisional act of force. A Red Book setting forth Moroccan affairs from May 10, 1906, to Feb. 17, 1908, distributed to the Cortes at the end of February, did much to allay apprehension.

SPARTA, EXCAVATIONS IN. See ARCHEOLOGY.

SPELTER. See ZINC.

SPERRY, CHARLES STILLMAN. An American naval officer, succeeded to the command of the

Atlantic fleet during its cruise around the world, at San Francisco on May 15, 1908. He was born in Brooklyn, N. Y., on Sept. 3, 1847, and graduated at the United States Naval Academy in 1866. He became master in 1869, lieutenant in 1870, lieutenant-commander in 1885, commander in 1894, captain in 1900, and rear-admiral in 1906. During the Spanish-American war he commanded the *Yorktown*. He was assigned in Nov., 1907, to command a division of the battleship fleet and succeeded to the command of the fleet at San Francisco. The fleet visited Australia, Japan, the Philippines, and Ceylon and returned to the United States by way of the Mediterranean.

SPIRITUALISTS' ASSOCIATION. THE NATIONAL. An organization of the various spiritualist societies of the United States into one general association, organized in 1893. Its general purpose is the study of spiritualistic phenomena, and it also engages in benevolent, charitable, educational, scientific, religious and missionary work. There were in the United States in 1908 600 spiritualist societies, 22 State associations, 25 camp meeting associations, one academy for liberal education, 200 churches and temples. The membership of avowed spiritualists is about 100,000. There are 1,500 public mediums and 200 ordained ministers. The president is Dr. George B. Warner; treasurer, Cassius L. Stevens; and the secretary, George W. Kates, Washington, D. C.

SPITZBERGEN. A group of islands in the Arctic Ocean, about 430 miles north of Norway. Area, about 21,500 square miles. The interior is little known. Russian, Scandinavian, and British hunters visit the islands. Norwegian whalers have been coming regularly every season since 1903. Coal mining is being carried on by two companies. The coal mines of the Trondhjem American Spitzbergen Coal Company were extended and deepened in the winter of 1907-8. About 2,000 tons of coal were mined during the winter, and regular working was to begin in Aug., 1908. By 1909 the electric power house to operate the mining machinery was to be completed. The Anglo-Bergen Coal Company, which was supplied with more suitable machinery, mined some 4,000 tons of coal during the winter of 1907-8. Spitzbergen coal from near Advent Bay is now used by the Norwegian State railways. The islands do not belong to any nation, and there is no policing of any sort, so that the naturally plentiful game is being wantonly destroyed. Diplomatic negotiations among the various powers interested, aiming at settling the political status of the islands, were in progress in 1908.

SPOFFORD, AINSWORTH RAND. An American librarian, died on Aug. 1, 1908. He was born at Gilmanstown, N. H., on Sept. 12, 1825, studied English and the classics under private tutors, and in 1844 went to Cincinnati, where he became a bookseller and publisher, and, in 1850, was one of the founders of the Literary Club. He was associate editor of the Cincinnati *Daily Commercial* from 1859 to 1861, when he became first assistant librarian of Congress. In 1864 he became librarian-in-chief and he held this position until 1897, when he was succeeded by Herbert Putnam, though he continued his connection with the library as chief assistant. At the time Mr. Spofford came to the library it contained only about 70,000 volumes, which

were arranged, after a fashion, in the Capitol. But within the next thirty years the collection had increased to more than 700,000 volumes, with shelf room for less than half that number. His publications include: *Practical Manual of Parliamentary Rules* (1884), and *A Book for All Readers—an Aid to the Collection, Use and Preservation of Books, and the Formation of Libraries* (3d ed., 1905); and edited the *Annual American Almanac* (1878-89), and, with others, *Library of Wit and Humor*, and *Library of Historic Characters and Famous Events*.

SPRECKELS, CLAUS. A German-American sugar manufacturer, died on Dec. 26, 1908. He was born in Darmstadt, Hanover, in 1828, came to America in 1846, and after engaging in business in Charleston, S. C., and New York City, went, in 1856, to San Francisco. Here, in 1863, he started a sugar refinery which was so successful that by 1866 he was enabled to sell it at a profit and go to Germany to study foreign methods of sugar refining. He returned to the United States in 1868 and again engaged in the manufacture of sugar. During the next twenty years he built four refineries, one of them in the Hawaiian Islands being at the time the largest in the world. After further study in Germany, in 1877, he started another refinery at Watsonville, Cal., in 1888. In 1889 he built an immense refinery, at a cost of \$5,000,000, near Philadelphia, but soon afterwards sold this and his San Francisco establishment. He was principal owner of the Oceanic Steamship Company.

STANDARD OIL. Numerous prosecutions against the Standard Oil Company of New Jersey and its subsidiary companies were carried on during 1908. The chief efforts of the Roosevelt administration against illegal combinations were directed against the Oil Trust. In 1908 there were in all more than a score of criminal suits against this company for illegally giving rebates. Most of these were continued from 1907 and were still pending at the end of the year. Of all these cases under the Elkins anti-rebate law, that in which Judge Landis on Aug. 3, 1907 imposed a fine of \$29,240,000 was the most conspicuous. The other prominent case was the civil suit brought in the United States Circuit Court at St. Louis seeking a dissolution of the combination as in violation of the Sherman anti-trust law.

The great fine imposed by Judge Landis was not paid. The Company appealed to the Circuit Court of Appeals of the seventh circuit. An opinion, written by Judge Peter L. Grosscup of Illinois, and reversing the Landis decision, was handed down on July 22. The two other judges concurred in the opinion. The court held that three rulings of the lower court were sufficient grounds for reversal, as follows: (1) Its ruling that a shipper may be convicted of accepting a concession from the lawful published rate, even though it was not shown that the shipper knew what the lawful published rate was; moreover the defendant was not allowed to present all his evidence as to his knowledge of the true rate; (2) its ruling that the number of offenses is the number of car-loads of property transmitted, irrespective of the question whether each car-load is the whole or only a part of a single transaction resulting in a shipment; the actual money settlements numbered 36, while the car-loads, the basis of the

fine, numbered 1462; (3) the largeness of the fine imposed, due to the effort "to reach and punish a party that was not before the court." Judge Grosscup characterized the fine as "an abuse of judicial discretion." The validity of the Court's reasoning was not universally accepted. President Roosevelt characterized the decision as "a gross miscarriage of justice."

This decision remanded the whole case for retrial to the District Court which imposed the heavy fine. In August however the government applied to the Circuit Court of Appeals for a rehearing. This application opposed the arguments of the Grosscup opinion. It pointed out that evidence had been presented showing Standard Oil not to be ignorant of the fact that it was receiving rebates. It alleged that the original proceedings had been directed against the Standard Oil Company of Indiana, that the trial judge had this company in mind when the fine was imposed, and that the fine was not excessive in view of the large profits of that company. It contended that the doctrine of the appellate court that only such settlement rather than each shipment constitutes an offense, "leaves it to the shipper and carrier to elect for how many offenses they shall be prosecuted and how much they shall be fined." As a basis for Judge Landis's doctrine that each carload is a separate offense, the application cited a previous decision by Judge Grosscup and asserted that in the case at hand each carload was in fact a separate shipment. Finally the application stated that if the fine were too large, the Circuit Court of Appeals might "itself name the fine which should be imposed," instead of sending the whole case back for retrial on the ground that the fine was excessive. On Nov. 10, the Court denied this application. Attorney-General Bonaparte thereupon petitioned the United States Supreme Court, on Nov. 20, for a writ of certiorari bringing up the evidence in the case for review by that tribunal. This petition was opposed by a brief filed by Standard Oil counsel, in which it was contended that "the policy of the law is against the review of a judgment in favor of the accused in a criminal case at the instance of the government." The brief contended that if shippers were to be held to a requirement of knowledge that the rates they accept are lawful, interstate commerce would be greatly restrained. The government's petition was dismissed (Jan. 4, 1909), leaving the case to be retried in the original court.

Of the numerous State prosecutions of the company, some were terminated during the year. On April 11, the Supreme Court of Tennessee forbade Standard Oil to do any business in that State. The most important suit of this sort however was that brought in 1907 by the State of Missouri against the Standard Oil Company of Indiana, the Republic Oil Company of Ohio, and the Waters-Pierce Company of Missouri. These companies were charged with conspiracy on four counts, namely, (1) to regulate and fix prices to retailers; (2) to control and limit the trade in the refined products of petroleum; (3) to prevent competition in the buying and selling of these products; (4) to mislead the public into the belief that they were separate and distinct corporations. The Supreme Court of Missouri sustained the charges and decreed that the Waters-

Pierce Company should be dissolved unless it should take steps by Jan. 15, 1909, to operate as an independent concern, and that the other two plaintiffs should be ousted from the State; besides each company was fined \$50,000. This was considered not only a personal victory for Attorney-General Hadley, but also a victory for State authority over corporations. There was, however, nothing in the decree preventing the Standard Oil Company of New Jersey organizing a new company to succeed the ousted subsidiaries. Nevertheless the Standard attorneys manifested considerable anxiety over the order of expulsion owing to the large investments of the company in that State, notably in the refinery at Sugar Creek near Kansas City. On Dec. 29, these attorneys announced that they would file a petition for a rehearing. On June 12, the District Court of Western New York sustained charges against the Company for accepting rebates. Motion for a new trial was filed at once.

A great sensation was created during the height of the political campaign by the reading from public platforms by Mr. Wm. R. Hearst of numerous letters purporting to be from the correspondence of John D. Archbold, vice-president of the company. The first of these letters, read in September, showed that Senator Foraker of Ohio and Governor Haskell of Oklahoma had at one time assisted in carrying out Standard Oil projects. The result was the prompt repudiation of Senator Foraker by prominent Republicans, and a most spirited exchange of controversial letters between President Roosevelt and W. J. Bryan, culminating in the resignation of Governor Haskell as treasurer of the Democratic campaign committee. The letters read in September also involved ex-Senator McLaurin of South Carolina. On Oct. 24, Mr. Hearst read more of these letters showing Mr. Archbold's intervention in the appointment of certain judges of the Superior and Supreme Courts of Pennsylvania and also implicating ex-Governor Wm. A. Stone. Finally, on Oct. 29, were read letters showing that Mr. Archbold had contributed annually from \$1250 to \$5000 to various newspapers and magazines, nominally as yearly subscriptions.

DISSOLUTION HEARINGS. The suit begun in Nov., 1906, in the United States Circuit Court at St. Louis, for the dissolution of the Standard Oil Company as a combination in restraint of trade in the manufacture and sale of petroleum, continued during the year; and Mr. Franklin Ferris, special examiner for the court, was still hearing evidence at the close of the year. During November and December, in hearings held at New York City, some of the leading officials of the company, including John D. Rockefeller and John D. Archbold, were subjected to examination. A number of field agents of the Standard, especially in the Southern States, were examined with reference to the control of its nominal rivals by the company, and it developed that in several cases, these were subsidiaries of the company, either organized by the company's agents or purchased by them. It was further testified that Standard agents used fraudulent lamp tests to prove competitors' oil of inferior quality; that oil was colored artificially, and misrepresented; and that rebates of from 50 per cent. to 75 per cent. were given to dealers in Standard Oil. Testimony was also made that

railroads carrying Standard Oil returned the Company's tank-cars free, while charging other companies \$105 per car.

Mr. Rockefeller's testimony traced the early history of the company until 1887, describing the fight with the Pennsylvania Railroad and the establishment of the rebate system. Mr. Archbold's testimony treated the affairs of the company from 1882 shortly after foundation to 1906. The refineries in that time had increased in value from \$14,000,000 to \$57,689,000, and the output had increased many times. Pipe lines now bring oil from the mid-continental fields to the Bayonne refinery, a distance of 1600 to 1700 miles. He contended that the company, by obtaining innumerable valuable by-products through its chemistry department, by protecting the customer from the exorbitant rates of local dealers, and by its building up of the export trade, had been of immense benefit to the country. He admitted that the company had contracted to supply oil to the People's Gas Company of Chicago at 1½ cents per gallon, if the latter would withdraw competition; and his testimony showed that the Indiana Company in seven years had earned \$5,500,000 on a capital stock of \$1,000,000; and that the Continental Oil Company had made a profit of 115 per cent. on a capital stock of \$300,000.

An interesting feature of the evidence submitted was a statistical study of prices by Professor Johnson of the School of Commerce of New York University. This showed in the main that the price of oil had not advanced more than prices of commodities in general, though a comparison of prices for 1895-96 with those of 1902-4 showed that, while prices in general rose 23 per cent., the price of oil rose 45 per cent. Other testimony was intended to show that the Standard Oil Company was not a pioneer in developing oil fields; that it gained its success by borrowing money and buying and improving competitors' plants; that agreements were made to restrict output; and that the company was a pioneer in obtaining rebates. Though many volumes of testimony have been taken, the hearings were resumed immediately after the holiday vacation. See RAILWAYS.

STANLEY, FREDERICK ARTHUR, Earl of Derby. A British statesman, died on June 14, 1908. He was born on Jan. 15, 1841, and succeeded his brother as sixteenth Earl of Derby in 1893. After a short service in the Guards he entered the House of Commons as a Conservative, was Financial Secretary for War from 1874 to 1877 and Financial Secretary to the Treasury in 1877 and 1878. He was Secretary of State for War during the last two years of the Disraeli ministry (1878-80), Secretary of State for the Colonies in the first Salisbury ministry (1885-86), and president of the Board of Trade in 1886-88. In 1888 he was created Lord Stanley of Preston and appointed Governor-General of Canada, where he remained until 1893.

STAR. See ASTRONOMY.

STATE BANKS. The report of the Comptroller of the Currency showed that there were 11,220 State banks in operation in the United States on or about June 30, 1908. They were located as follows: New England States, 19; Eastern, 406; Southern, 3312; Middle Western, 3689; Western, 2866; Pacific, 902; and island possessions, 26. Missouri had the greatest number with 934; Kansas had 740; Minnesota, 607,

and Nebraska, 598. State banks are in operation in every State and Territory except Maine, Vermont and Rhode Island. The aggregate resources of State banks in 1908 were \$4,032,038,000, a very slight decrease during the year. The principal items of resources were: Loans on real estate, \$188,352,000; other loans and discounts, \$2,218,000,000; stocks and bonds, \$502,436,000; due from other banks, \$549,297,000; cash and checks, \$379,987,000. The liabilities included: capital stock, \$502,513,000; surplus and other profits, \$303,615,000; deposits, \$2,937,129,000; due other banks, \$207,432,000. These items varied little from those for 1907, except for a moderate increase in capital stock, surplus and undivided profits, and cash on hand. A comparison, however, with returns for 1904 shows an increase of \$1,168,894,000 in aggregate resources, \$155,092,000 in capital stock, and \$863,911,000 in deposits.

States ranking first in amount of capital invested in State banks were: Illinois, \$52,460,000; Ohio, \$38,950,700; and New York, \$33,283,000. Illinois also ranked first in deposits held by such banks, with \$427,277,000; New York second, with \$375,956,000; and Ohio third, with \$304,845,000.

Comparing the condition of State banks with the aggregate of banking statistics of the United States, shows that in 1908 they had 28.8 per cent. of the total banking capital, 17 per cent. of the total surplus and undivided profits, 20 per cent. of the aggregate resources, and 23 per cent. of the loans, of the cash on hand, and of the individual deposits. See BANKS AND BANKING.

STEAM ENGINE. See STEAM TURBINES.

STEAM TURBINES. An interesting report of the economic possibilities of exhaust steam low pressure turbines was made during the year based on data of three different plants: the Cambridge Electric Light Company and the Philadelphia Rapid Transit Company's plant and also from that of the Scranton Street Railway, figured in a paper read by Charles B. Burleigh before the National Association of Cotton Manufacturers. The profitable use of the turbine was shown in striking form at the Philadelphia station, where with an increase of 10 per cent. in station capacity provided by the first turbine used, there was a saving of 105 tons of coal consumed per month. In the following year 1906-7 with two turbines in use there was an increase output of energy of 19.5 per cent. and a saving in coal of about \$230 per month in fuel. The turbine lends itself conveniently as the machine to use low pressure steam, and it is here its economy lies as the above statement and the record below of its use at sea with the reciprocating engine testify. As to its use at higher pressures there was not the same unanimity of opinion, especially for driving generators. Nevertheless the use of steam turbines of large size, especially for central station work, had become well established before 1908, but the use of such units of less than 300 horse-power was comparatively slow, though by that year a wide diversity of uses had been found for turbines of this class. These applications, excellently summarized by C. A. Howard (*Engineering Magazine*, Jan., 1909), include their use for driving exciters, for centrifugal boiler-feed pumps, centrifugal hot-well pumps for condensers, fans for forced and induced draft, and for driving small

main generators. These illustrated but a few of the uses that the small turbine had found, but it indicated the variety, and showed that, especially where rotary machinery was to be direct driven, the steam turbine could be used. Thus in ventilating fans for mines it has proved successful and especially in driving the generator for railway train lighting, the turbine driven unit of about 25 kilowatts capacity being located for this purpose either on top of the boiler or back in the baggage car, the space occupied being far less than with any form of reciprocating engine. For driving the blowers for gas works and foundry cupolas the turbine is found to be very useful as the blower can be brought up to full speed in the shortest possible time, much less than with a reciprocating engine. The turbine also found a useful place in isolated lighting plants. In summing up the present status of the small steam turbine, after referring to the fact that when the cost of the complete unit for a given service is considered, whether it be fan, generator, or pump, the total cost will in almost every instance be much lower for the higher speed turbine-driven installation, which will also occupy very much less space, Mr. Howard concludes, "It must not be inferred that the advent of the steam turbine will drive the engine out of use. This will probably never take place. The steam engine as built today is probably more intelligently and carefully designed and constructed and better and more widely used than any other machine in use. There are many conditions to which the reciprocating engine will continue to be better adapted than any other type of prime mover. When electricity came into extensive use for lighting, many people thought that the gas companies would have to go out of business, but they are still just as busy as ever. In their future development the engine and the turbine should each seek the field which it can fill."

The innovation of a combination of two reciprocating engines driving outside propellers and low pressure turbine on the centre line of the vessel introduced into the White Star Steamship *Laurentic* was an engineering construction from which much was expected and this 14,500 ton liner seemed in the way to make a record for efficiency of operation though not designed for extreme speed. A combination of reciprocating engines and turbines was also planned for the two monster ships *Olympic* and *Titanic*. (See SHIPBUILDING.) The idea however found actual application in the British merchant steamer *Otaki*, a vessel for the New Zealand trade 464 feet in length which had its trial trip in November. The twin screws are driven by triple expansion engines.

In the United States Navy three scout cruisers of 4580 tons displacement each, fitted with Curtis and Parsons turbines and reciprocating engines respectively, were tested under similar conditions. The *Salem* with the Curtis turbines made on her trial trip an average speed of 25.94 knots or better speed than the *Birmingham*, 24.32 knots, which had reciprocating engines: while the *Chester*, with Parsons turbines, showed superior economy to the *Salem* at all speeds, attaining on full speed trial with the same coal consumption an extra speed representing about 14 per cent. additional effective horse-power and making a speed record of

26.52 knots. Further trials were planned for these ships.

A paper was published during the year by R. Caird (*Cassiers' Magazine*, Nov., 1908), on "Piston Engines versus Turbines on the Atlantic," in which was a comparison of the *Kaiser Wilhelm II.*, which, previous to the *Lusitania* and *Mauretania*, had held the speed record, and the Cunard turbine steamer *Lusitania*. It here was argued that the *Kaiser Wilhelm II.* was about 15 per cent. more efficient than the *Lusitania*, and that if the latter were driven by three sets of quadruple expansion engines the required speed and power would be obtained with a gain of propulsion efficiency on shaft horse-power of almost 12 per cent.

STEDMAN, EDMUND CLARENCE. An American poet and critic, died on Jan. 18, 1908. He was born in Hartford, Conn., on Oct. 8, 1833, and from his fifth year (when his father died), until he was sixteen he lived with his uncle, in Norwich. He entered Yale in 1849, but was suspended at the end of his sophomore year for a breach of discipline. His college, however, in 1871 restored him to his class and gave him the degree of M. A. He edited the *Norwich (Conn.) Tribune* in 1852-53, and the *Winsted (Conn.) Herald* in 1854-55, when he went to New York City, where he was a member of the staff of the *Tribune* in 1859-61. He was a war correspondent for the *New York World* in 1861-63 at the headquarters of General McDowell and of General McClellan, and he then (1864) held a confidential position under United States Attorney-General Bates. In the same year he became connected with the Union Pacific Railroad, an association which resulted in his entering commercial life. He became a member of the New York Stock Exchange in 1869 and retained his seat until 1900. During this interval, though he was actively engaged as a broker, he continued his literary work. He was at first successful in his business, but afterward had serious reverses (due chiefly to mismanagement by one of his associates) which consumed practically all of his means, with the result that in his later years, and with his health often poor, he was dependent largely upon his pen for his livelihood. As a poet, Mr. Stedman became first generally known probably through his verse contributed to the *New York Tribune*, and especially his ballad, *How Old Brown Took Harper's Ferry*. Of his longer poems, mention should be made of *Alice of Monmouth* and *The Blameless Prince*, while of the shorter ones, *Stanzas for Music*, *The Doorstep*, *Toujours Amour*, *Ariel*, and *Pan in Wall Street* are perhaps as well known as any. The best of his critical work is included in his *Victorian Poets* (1875); 13 ed 1887), *Poets of America* (1885), and *The Nature and Elements of Poetry* (1892)—the last named comprising his lectures on the Turnbull foundation at Johns Hopkins in 1891. Substantial contributions to literature were his *Victorian Anthology* (1895) and *American Anthology* (1900), both valuable and, in the main, discriminating collections of the best English and American poetry for the periods indicated. His other publications include, *Poems Lyric and Idyllic* (1860); *The Battle of Bull Run* (1861); *Alice of Monmouth: an Idyl of the Great War, and Other Poems* (1864); *The Blameless Prince, and Other Poems* (1869); *Poetical Works*, collective edi-

tion (1873); *Hawthorne, and Other Poems* (1877); *Poems*, household edition (1884); *Works* (4 vols., 1885); *Poems Now First Collected* (1897); *Mater Coronata* (1901) and *Hymn of the West* (1904). He edited *Cameos from the Poems of W. S. Landor*, with T. B. Aldrich (1874); *Poems of Austin Dobson* (1880); *Elizabeth Stoddard's Novels* (1888-89); *A Library of American Literature*, with Ellen Mackay Hutchinson (11 vols. 1888-89); *The Works of Edgar Allen Poe*, with Prof. G. E. Woodberry (10 vols., 1895), and *History of the New York Stock Exchange* (3 vols. 1904-6). Mr. Stedman succeeded James Russell Lowell as president of the American Copyright League in 1891, and was president of the National Institute of Arts and Letters in 1904-05.

STEIN, M. A. See EXPLORATION.

STELLAR SPECTRA. See ASTRONOMY.

STERNBURG, HERMANN SPECK VON. A German diplomatist, ambassador to the United States, died on Aug. 23, 1908. He was born at Leeds, England, on Aug. 21, 1852, and received his education in Germany, making a specialty of military and naval science, international law, and political economy. After completing his education, he entered the military service, serving throughout the Franco-German war, and in 1885 became military attaché to the German legation at Washington. He was reappointed in 1889 and promoted to the rank of major. The following year he entered the diplomatic service, being first appointed secretary to the legation at Peking, and afterward chargé d'affaires at Belgrade, Servia. In 1898 he became first secretary to the German embassy at Washington, and also served as German high commissioner on the Samoan Commission. He was appointed consul-general for British India and Ceylon in 1900, and subsequently was sent to the United States as a special representative to settle the Venezuelan claims. In July, 1903, he was made German ambassador to the United States. It was through his efforts in 1906 that the German government agreed to make a tariff arrangement under which the old commercial treaty would hold good for another year, provided American customs officials would modify certain of their appraisal practices. This postponement gave the two governments an opportunity to make a satisfactory commercial agreement, which agreement, as drawn up, was largely the work of Baron von Sternburg.

STEVENS, DURHAM WHITE. Diplomatic adviser to the Korean government, died on Mar. 25, 1908. He was born at Washington on Feb. 1, 1852; graduated at Oberlin College in 1871, and attended the Columbian Law School, Washington, until 1873, when he went to Japan to become secretary of the United States legation at Tokio. In 1883 he resigned this position and was made counsellor of the Japanese legation at Washington. He subsequently was legal adviser in the foreign office at Tokio; was attached to the embassy sent to Korea by Japan to settle questions which had arisen between Japan and China; was a member of the legation at Washington, when the Mexican treaty and treaties with the United States and Japan were revised; and was Japanese agent to Hawaii. In Dec., 1904, he was appointed diplomatic adviser to the Korean government. He was shot at San Francisco on Mar. 23, 1908, by Koreans, who

were instigated by that faction in Korea, which resented what it considered to be the oppressive overlordship of Japan. In Mar., 1908, the Mikado bestowed upon Mr. Stevens the Order of the Grand Rising Sun. Mr. Stevens' family was to receive \$100,000 from the Japanese government.

STEVENS, FRANCIS B. An American civil engineer, died on May 24, 1908. He was born at Trenton, N. J., on Oct. 16, 1814, studied at New York University, became a civil engineer, and made the surveys between Camden and Trenton, where the lines of the Pennsylvania Railroad now run. He was also prominent as an inventor, his most valuable invention being that known as the "Stevens cut-off."

STEWART, ALEXANDER PETER. An American Confederate soldier, died at Biloxi, Miss., on Aug. 30, 1908. He was born at Rogersville, Tenn., on Oct. 2, 1821, and graduated at the United States Military Academy in 1842. He served three years in the army as lieutenant of artillery and resigned in 1845, became professor of mathematics and philosophy at Cumberland University, and later at the University of Nashville. At the beginning of the Civil War he was major of Tennessee troops, and on the secession of that State became a brigadier-general in the Confederate army. He commanded a brigade at Shiloh, Perryville, and Stone River, was made major-general and commanded the division of Hood's Corps at Chickamauga which broke the Federal centre. He led his division through the Georgia campaign of 1864 until June 23, when he succeeded General Polk, in command of the latter's corps. He distinguished himself at the battle of New Hope Church, commanded his corps during Hood's campaign in Tennessee, and was in the last engagements of Johnson's army in North Carolina. After the war he was chancellor of the University of Mississippi from 1874 to 1888 and in 1890 was appointed a member of the Chickamauga National Park Commission.

STEWART, JOHN WOLCOTT. An American politician, United States Senator (Republican) from Vermont. He was born at Middlebury, Vt., on Nov. 24, 1825, graduated at Middlebury College in 1846 and was admitted to the bar in 1850. He was prosecuting attorney from 1852 to 1854, member of the lower house of the State Legislature in 1856, 1857, 1864, 1865, 1866, 1867 and 1876, serving as Speaker from 1865 to 1867 and in 1876; and State Senator in 1861 and 1862. In 1870-71 he was Governor of Vermont, and in 1822 was elected Representative to Congress, where he remained until 1891. On Mar. 24, 1908, he was appointed United States Senator *ad interim* by Governor Fletcher D. Proctor to fill the vacancy caused by the death of Redfield Proctor (q. v.). His term expired on Oct. 21, 1908, when the State Legislature elected Carroll S. Page (q. v.) to fill the unexpired term.

STEWART, WILLIAM F. An American soldier, whose so-called "exile" to Fort Grant, Arizona, created considerable comment in 1908. See UNITED STATES, Army.

STOCK RAISING. The Bureau of Statistics of the Department of Agriculture made the following estimate of the number and value of farm animals on farms and ranges on Jan. 1, 1909.

Farm Animals	Numbers	Av. price per head	Total value
Horses, 1909.....	20,640,000	\$95.64	\$1,974,052,000
" 1908.....	19,992,000	93.41	1,867,530,000
Average, 1898-1907..		60.25	
Mules, 1909.....	4,053,000	107.84	437,082,000
" 1908.....	3,869,000	107.76	416,939,000
Average 1898-1907..		72.30	
Milch cows, 1909..	21,720,000	32.36	702,945,000
" 1908.....	21,194,000	30.67	650,057,000
Average 1898-1907..		29.52	
Other Cattle, 1909..	49,379,000	17.49	863,754,000
" 1908.....	50,073,000	16.89	845,938,000
Average 1898-1907..		19.02	
Sheep, 1909.....	56,084,000	3.43	192,632,000
" 1908.....	54,631,000	3.88	211,736,000
Average, 1898-1907..		2.92	
Swine, 1909.....	54,147,000	6.55	354,794,000
" 1908.....	56,084,000	6.05	339,030,000
Average, 1898-1907..		6.07	
Total value of all animals Jan. 1, 1909			\$4,525,259,000
Total value of all animals Jan. 1, 1908			4,331,230,000
Increase of since Jan. 1, 1908.....			194,029,000

Imports and exports of live animals during the calendar year 1908:

	Imports		Exports	
	No.	Value	No.	Value
Cattle	112,102	\$1,599,037	277,036	\$24,034,193
Horses	5,224	1,435,315	18,516	2,893,344
Mules			4,925	823,952
Sheep	125,566	547,954	100,644	605,792
Swine			29,005	256,938
Others, including fowls		494,539		235,196

Estimated number of live stock in the principal foreign countries:

	Cattle	Sheep	Swine	Horses
British Isles	5,700,000	29,900,000	4,000,000	2,100,000
Australia ..	9,200,000	81,700,000	900,000	1,700,000
New Zealand	1,800,000	21,000,000	200,000	400,000
Canada	5,600,000	2,500,000	2,400,000	1,600,000
South Africa	3,900,000	20,700,000	700,000	500,000
India	52,100,000	18,000,000		1,300,000
Russia	31,000,000	38,000,000		20,000,000
Germany ..	20,000,000		18,000,000	4,000,000
France	14,000,000	17,000,000	7,000,000	3,000,000
Argentina ..	29,000,000	67,000,000	1,500,000	7,500,000

In the above figures the number of cattle credited to India was not complete, as it does not include calves, 13,000,000 buffaloes, or 25,000,000 goats.

The Secretary of Agriculture reports that the value of animals sold and slaughtered, and of animal products in the United States, amounted to nearly \$3,000,000,000, or about three-eighths of the value of all farm products estimated upon the census basis. The increase in value was due to the increase in the number of animals, and to an advance in price. Animals and animal products contributed about 16 per cent. to the value of the total exports in 1908. The exports of hides and packing house pro-

ducts amounted to \$196,000,000, the imports, \$66,000,000.

CATTLE. The cattle industry continued to increase, having suffered little from the financial panic of 1907. There was a decrease in the stocker and feeder trade at most of the Missouri River markets, but Chicago shipped 360,000, or 27,000 more cattle of this class than in 1907. A number of minor markets have grown in importance, as Milwaukee, St. Paul, Sioux City, Indianapolis, Wichita, Denver, and Fort Worth, though many of these markets are increasing faster in sales of hogs than in cattle. Fort Worth did a feeder trade of 115,000 head, as against 87,000 in 1907. The cattle business was changing somewhat in character and big cattlemen were not so common as formerly. The rapidity of the change has been checked somewhat by the opening of thousands of acres of range land which had been unlawfully fenced in. Some of the big ranchers are now locating in Mexico. Tendencies indicate that the range stock industry of the future would be confined to those regions that are too rough for cultivation, or too arid for the successful growth of crops. The number of cattle fed by the small stockman, who is, to some extent, a farmer, was increasing rapidly. The result was a better quality of beef that goes to market. Baby beef is growing in popularity, but it calls for skill on the part of the feeder. Cheap land in the South Atlantic and Gulf States awakened cattlemen to the opportunities in that section. Canada and the United States have the advantage over other countries in being able to ship live cattle to Great Britain. In spite of this, in Canada the exports of beef cattle fell off, due, in part, to the greater interest taken in dairying, especially in the eastern provinces. Argentina was competing successfully with other countries in the dressed beef trade. The exportation of cattle from Porto Rico to other parts of the West Indies, formerly quite extensive, practically ceased, for, since there has been free trade with the United States, sugar has replaced cattle as a source of revenue. In Alaska Galloway cattle have demonstrated their ability to withstand winter conditions without shelter except an open shed.

Feeding stuffs were high in price, and this resulted in a search for new feeds, cheaper methods of raising the common grains and fodder crops, and the adulteration of concentrated commercial feeds. Rice hulls, cotton seed hulls, and corn cobs were common adulterants found in the United States. In Europe a great many adulterants were found in feeds, and being a common one.

HORSES. The year 1908 witnessed renewed interest in breeding both light and draft horses. The coöperative work of the Department of Agriculture in breeding Morgan horses in Vermont, draft horses in Iowa, and carriage horses in Colorado was continued. A uniform system for the classification of carriage horses was adopted by State fair authorities with success. At the last session of the New Jersey Legislature \$20,000 was appropriated to purchase and maintain stallions of the draft and coach type for the use of farmers' organizations, as authorized by a commission. After visiting various European countries, 8 Percherons, 3 Clydesdales, a hackney, and a heavy harness horse were purchased, all of which were to be loaned to farmers' breeders' associations to produce a more marketable.

as well as a more serviceable, horse. In Denmark, where the draft horse had been well developed, some attention is now being given to improving the lighter types.

SHEEP. The year 1908 witnessed an increase of 1,453,000 in the numbers of sheep in the United States, but a decrease in total value of \$19,104,000, as a result of the drop in price per head from \$3.88 to \$3.43. In New Mexico and Arizona there was a large increase in the number of sheep fit for shearing, though Wyoming and Montana were still the leading wool producing States. The total wool clipped for the country, including pulled wool, was about 300,000,000 pounds, equal to 135,000,000 pounds of scoured wool, valued at \$61,700,000. The average weight of fleece was 6.7 pounds, a slight increase over 1907. There were 168,691 pounds of raw wool exported, valued at \$34,554. The imports of raw wool amounted to 142,558,344 pounds, valued at \$23,304,465. Argentina sent 7,000,000 pounds less of wool to the United States than in 1907. On the whole, 1908 was an unsatisfactory year for the sheep industry, but the outlook was brighter at the end of the year. In the fall of 1907 prices began to ebb, and during 1908 were about 15 per cent lower than the previous year.

SWINE. The swine industry increased in all stock-raising countries. Although in the United States there was a decrease in number, there was a rise in value. Following the lead of Denmark, coöperative bacon factories were started in some other countries. The lard hog, once so popular in the Mississippi Valley, was giving way to the bacon type. Though for years many pigs were fattened on corn alone, experimental work amply demonstrated the advantage of adding some supplementary feed to corn, especially during the early part of the fattening period. At the Indiana station soy bean meal was found to be a home-grown product equal to linseed meal as a supplement to corn. At the Alabama station peanuts and soy beans made a satisfactory ration for hogs. At the Nebraska station swine feeds rich in phosphates and other mineral matter increased the strength of bones. In Germany a series of coöperative experiments have demonstrated that skim milk and steamed potatoes are the best home-grown feed for pigs.

POULTRY. The Secretary of Agriculture, in his report for 1908, stated that the eggs and poultry produced on the farm were worth \$6,000,000, or as much as the cotton crop, the hay crop, or the wheat crop. To obtain the total value of the poultry industry, the poultry products of cities and villages should be added to the above estimate, as they are not included in the census reports. The mean farm price of eggs per dozen in the United States was 11.15 cents in 1899, 17.02 cents in 1907, and 18.3 cents in 1908. The mean wholesale price per pound of dressed poultry in New York was 11.15 cents in 1899, 14.9 cents in 1907, and 13.56 cents in 1908. Plymouth Rocks, Wyandottes, and Rhode Island Reds, all breeds of American origin, were growing in popularity, both at home and abroad. In Germany Wyandottes were supplanting many of the older breeds. The Orpington, an English breed, was growing in favor. At the 20th Annual Exhibition of the New York Poultry Association, in 1908, the largest ever held in this country, there were 2,613 entries in all, of which 465 were Orpingtons. The largest poultry show ever held was at Crystal Palace, near London,

with 10,625 entries. The breeding of poultry for high egg production was stimulated by egg laying contests in different parts of the world. In a six months' test in Australia the average egg yield was 171 eggs per hen, the cost of feed \$1.40, and the average profit \$2.16. The Cuckoo Leghorn led the other breeds, averaging 190.16 eggs per hen. In Denmark, Sweden, and Germany the establishment of breeding stations had much influence in the improvement of the methods of breeding and feeding poultry.

BREEDING. The interest in breeding problems was increasing, as was witnessed by the activity of breeders' associations and by investigations of the laws of inheritance. There were 135 certified pedigree record associations in the United States. The Department of Agriculture was co-operating with a number of the State stations to solve breeding problems, and at its experimental farm in Maryland was conducting experiments in telegony, inbreeding, and hybridizing.

STOCKS AND BONDS. See FINANCIAL REVIEW.

STONE, WILLIAM LEETE. An American historical writer, died on June 11, 1908. He was born in New York city on April 4, 1835; graduated at Brown University in 1858, and the following year was admitted to the bar. He was centennial historian for New York State, a member of numerous historical societies and associations in the United States and Canada, and a member of the Royal Society of Copenhagen. His writings, which deal principally with the Revolutionary period, include: *The Life and Times of Sir William Johnson, Bart.*; *Revolutionary Letters*; *Burgoyne's Campaign and St. Leger's Expedition*; *The Saratoga Battle Grounds*; *The Life of Governor George Clinton*; *History of New York City*.

STORAGE BATTERY. In the latter part of 1907 Edison's much talked of iron-nickel storage battery was put on the market and promised to fulfill the long felt need of a light battery for traction work. Unfortunately, a few months' use of these batteries in actual service developed a number of weak points; in particular, it was found that the active material was rapidly precipitated from the surface of the plates. The manufacturers therefore stopped the sale of the battery until this defect could be overcome; toward the end of the year it was claimed that a satisfactory solution of this difficulty had been reached. In the manufacture of the lead accumulator there was manifested during the year a tendency to return to the earlier form of Planté plates having a thicker web, on account of the increased durability of such plates, even though this necessitates an increase in cost and weight and a decrease in capacity. The high capacity plates having a thin web and large exposed surface have too short a life to be economical. The application of storage batteries to alternating current systems, supplying a fluctuating load, has opened up a new field of usefulness for this piece of apparatus, and has incidentally brought about considerable improvement in the split phase rotary converter and the alternating current booster. The former is a rotary converter so designed that the voltage on the direct current side may be varied within wide limits with a constant alternating current voltage impressed on the slip rings. By automatically varying the direct current voltage, charge and discharge of the bat-

tery is effected in the usual manner. The alternating current booster is used with an ordinary rotary converter and is so connected in the circuit that the voltage of the alternating current supplied to the converter is automatically raised or lowered, the direct-current voltage therefore varies in the same manner, and the battery thus automatically receives energy or gives it out to the line. During the year the price of storage batteries was materially reduced. Unless the price is again raised when commercial conditions improve it was thought that this apparatus would undoubtedly be used much more extensively than formerly, as its high cost was one of the chief obstacles in the way of its general application to railway and lighting work, particularly for carrying peak loads.

STRACHEY, SIR RICHARD. An English colonial official and scientist, died on February 12, 1908. He was born on July 24, 1817, served in the Sutlej campaign in 1845-46, was secretary of the Government Central Provinces in 1857-58, public works secretary to the government of India in 1862, and inspector general of irrigation in 1867. In 1878-80 he was president of the Famine Commission; in 1892 a member of Lord Herschel's Committee on Indian Currency; in 1883-1905 chairman of the Meteorological Council, and in 1888-90 president of the Royal Geographical Society. He also served as chairman of the East Indian Railway Company in 1889-1907, and as chairman of the Assam-Bengal Railway Company in 1892-1907. He was awarded a royal medal by the Royal Society in 1897 for his report, in 1888, on the barometrical disturbances and sounds produced by the eruption of Krakatoa, and his paper in the *Philosophical Transactions* of 1893 on the "Harmonic Analysis of Hourly Observations of the Temperature and Pressure at British Observatories." He is also credited with having been first to consider scientifically the physical and botanical geography, geology, and meteorology of the Western Himalayas.

STRAITS SETTLEMENTS. A British colony, comprising some of the British possessions on the Malay Peninsula (Province Wellesley, Malacca, and the Dindings), some of the adjacent islands (Singapore, Penang, Pangkor, etc.), and some distant islands—Cocos or Keeling, Christmas and Labuan (qq. v.). Excluding the distant attachments, the total area is 1,542 square miles, and the total population was estimated in 1906 at 611,790, mostly Malays and Chinese. The population of the principal cities in 1901 was: Singapore, 193,089; Georgetown, the capital of Penang, 94,086; Malacca, 15,586. The principal products, with the quantities of their exports in 1907 (tons of 2,240 pounds), are: Copra, 56,830; coffee, 4,635; gambier, 28,027; gum copal, 10,023; gutta-percha, 3,064; gutta jelotong, 14,941; raw hides, 3,254; nutmegs, 794; black pepper, 16,016; white pepper, 6,296; rubber, 2,521 tons; rattans, 18,267; sago flour, 47,672; sago pearl, 3,507; tapioca flake, flour, and pearl, 30,902; tin, 52,557; pineapples, 759,392 (cases). Other products and exports are: Cloves, cubes, gum benjamin and dammar, tanned hides, isinglass, Malacca canes, mace, and sticlac. Rubber plantations are rapidly extending. The number of estate laborers in 1907 was 14,886, consisting of Tamils, Javanese, Chinese, and Malays. The imports and exports in 1907 amount-

ed to 350,570,202 and 305,301,907 dollars (of about 50 cents each) respectively, excluding the inter-settlement trade of 28,185,224 dollars both ways. The principal imports were valued as follows, in dollars: Fish, 9,332,827; rice, 34,136,846; spices, 13,030,119; gums, dyes, and resins, 14,676,969; tin, 25,609,395; tin ore, 54,517,992; copra, 9,870,216; cotton goods, 24,747,238; metal manufactures, 13,493,143. The principal exports were, in dollars: Rice, 34,559,419; opium, 8,757,920; areca nuts, 5,714,728; pepper, 8,881,949; sugar, 7,196,408; tapioca, 8,221,564; copra, 9,447,709; tin, 83,207,807. The trade is largely transit in character. The trade with the principal countries of import and export in 1907 was as follows, in dollars:

From and to	Imports	Exports
Great Britain	49,434,985	75,625,713
Australasia	6,878,088	1,534,585
British India	42,354,776	17,835,160
Hongkong	32,260,198	12,539,285
Federated Malay States	74,415,648	41,587,500
Sarawak	5,016,755	3,940,804
Total British Empire	212,340,119	158,535,051
Austria-Hungary	1,675,068	2,790,896
Belgium	2,375,789	2,390,468
China	6,834,237	4,636,194
France	1,854,721	10,665,639
French possessions	8,070,601	3,037,446
Germany	6,396,845	6,703,756
Netherlands	2,661,192	1,541,603
Italy	2,826,333	5,275,437
Japan	6,995,958	2,564,855
Dutch India	49,665,632	45,604,915
Siam	30,180,867	18,536,896
United States	3,592,494	28,450,090

The aggregate trade of Singapore in 1907, including inter-settlement trade was 481,027,041 dollars, the value of exported tin being 43,928,746 dollars. The aggregate trade of Penang was 193,490,300 dollars, the export of tin being 39,279,661 dollars. A large part of the transit trade of Singapore has of late been diverted to Macassar, on Celebes, Dutch East Indies. In 1906 there were 8 miles of railway and 1,567 miles of telegraph lines. The revenue in 1907 was 10,023,016; expenditure, 9,499,693; and public debt, 5,000,000 dollars. At Singapore there was, in 1908, a British garrison of 2,355. The governor in 1908 was Sir John Anderson. At Penang and Malacca there are residents.

The railway connecting Singapore with Penang and passing through Johore was opened on Dec. 12, 1908. Its cost was placed at £1,283,000. It opens up important tin and rubber regions of Federated States.

STREET CLEANING. Like the collection and disposal of garbage and other city wastes (see GARBAGE AND REFUSE DISPOSAL), street cleaning in the United States suffers through politics, ignorance, and neglect, and never will be properly conducted until it is put on a thorough-going business and engineering basis. A notable study of street cleaning, which, though primarily local in character, was virtually a treatise on that and the closely allied subject of city waste disposal, was published early in 1908. This study was made at the instance of Mr. George B. McClellan, Mayor of New York City, by a commission of engineers (see GARBAGE DISPOSAL for reference). The report described street cleaning and waste disposal methods in use in New York City and in various foreign cities, and included estimates of cost of various methods of street cleaning in use to-day. A

point worthy of particular note was the assertion of the commission that "the efforts of street cleaning departments of nearly every city are principally directed to the removal of dirt in its gross or primary form; or, rather, the methods of cleaning in common use remove only the coarser fragments, leaving the mud and dust upon the surface of the street." The mud "pollutes the feet and clothing of human beings," and the dust fills the air of streets and buildings alike. Both mud and dust spread disease germs (particularly tuberculosis or consumption), besides doing much damage to property and causing endless annoyance.

The improved method of hand-hose flushing suggested involved the use of a 1-inch nozzle and a fan-shaped jet having its longer axis parallel to the surface of the pavement, with a water pressure of 30 pounds per square inch, instead of using an ordinary nozzle of 1¼-inch diameter, under 40 pounds pressure. The improved nozzle requires much less water than the ordinary one, besides being more efficient otherwise. Coöperation between the street cleaning and other city departments was urged, as also the great importance of improved means of accounting and cost-keeping.

STREET PAVEMENTS. See PAVEMENTS AND ROADS.

STRIKES AND LOCKOUTS. UNITED STATES. Although 1908 was a year of marked industrial depression, it was not at all notable for industrial disturbances. This was due to a variety of causes, among which were the activities of the Government Board of Mediation and Arbitration, the intervention of State bureaus of labor, the more frequent resort by employer and employees to conciliatory methods, and the policy of many employers in reducing output and the expenses of production by diminishing their labor force, instead of reducing wages.

In August occurred a strike in the Alabama coal mines of the Birmingham district. This strike was marked by unusual violence. On August 9, rioting resulted in the killing of three and the wounding of eleven. This was followed by the arrest of thirty men, one of whom was the president of the local miners' union. Shortly afterward four houses owned by non-union negroes were dynamited, leading to the arrest of fifteen of the strikers. The State militia was sent to Birmingham, but the district was not put under martial law. On September 3 the strike was declared off, several thousand of the men returning to work on a non-union basis. This strike was reported to have collapsed because the unions recognized their inability to cope successfully with the mine owners. Other strikes by coal miners included that at Charleston, West Virginia, involving fourteen mines, on account of a proposed reduction of wages, and that at Marion, Illinois, on account of the inferior quality of powder furnished by the company. In November occurred a strike of the workers in the clay pits, kilns, and plants of the National Fire-proofing Company and of several independent companies near Perth Amboy and Keasbey, New Jersey. The strikers had been working on short time at wages amounting to less than a dollar for a ten-hour day. They were without organization, being mostly Magyars, Poles, and Slovaks. They claimed to have understood that they were to receive increased pay if Taft were elected. While no serious rioting occurred, Governor Fort sent six com-

panies of the New Jersey National Guard to protect the properties, with orders to "strike hard" in case of rioting. On several occasions groups of disorderly strikers were fired upon by the soldiers. On Thanksgiving Day the Great Eastern Company agreed to take back all of its 600 men at a wage rate of \$1.30 for a ten-hour day. Hungarian and Polish priests endeavored to induce the employees of the National Fire-proofing Company to accept the \$1.40 offered by that company. The strikers finally accepted this rate, instead of the rate of \$1.50 per day for which they had contended. An investigation of the working conditions and living expenses of those engaged in this strike by A. P. Kellogg of the Charity Organization Society led him to the conclusion that this rate was too low to maintain that standard of living necessary to transform immigrants from central and southern Europe into American citizens. In September and October there occurred in New York city a strike of the taxicab chauffeurs, who demanded increased pay. Strike breakers were at once secured to take their places, and violent disturbances followed. The strike breakers were maliciously assaulted and taxicabs were stoned and in some cases stolen. Early in October an injunction was secured forbidding interference with the operating company. During the Christmas holidays about 2,500 cab drivers and chauffeurs in the same city, belonging to the Liberty Dawn Coach-Drivers' Association and the United Teamsters of America, went out on strike. The strikers demanded twelve hours freedom each day and a minimum salary of \$15 per week. About 45 stables and garages owned by members of the Livery Stable Owners' Association were affected. Strike breakers were soon employed, but the continuous assaults characterizing the preceding strike were not repeated. By the close of the year most of the strikers had returned to work.

CANADA. The year in Canada was notable for a scarcity of strikes, a condition to be attributed in a very large measure to the operation of the Industrial Disputes Investigation Act of 1907. (See INDUSTRIAL ARBITRATION AND CONCILIATION.) This law does not require the acceptance by the parties to a labor dispute of the award of an arbitration board, and hence dissatisfaction on the part of either disputant may lead to a lockout or a strike. This was the case with the most important strike of the year, the strike of the employees in the mechanical and car departments of the Canadian Pacific Railroad. This railroad builds its own cars and locomotives. In April the company served notice on its employees in the shops in Winnipeg that it would reduce the wages of one class of boiler makers, increase the proportion of apprentices to journeymen, and employ men who had not served full apprenticeship. The men of the Federated Trades of the mechanical and car departments refused to accept the new conditions. Under the law of 1907 a conciliation board was formed, composed of one representative of the men and one of the company and a chairman chosen by these two. The deliberations and investigations of this board occupied two months, during which work continued. The chairman and the representatives of the company agreed on a majority report favoring the company on the first and third points in dispute and compromising on the subject of increased apprentices. The representative of the

men sent in a minority report. On August 1 the company put into effect the findings of the majority, and three days later machinists and mechanics to the number of about 9,000, in shops all along the line, went out on strike. Early in September many of the French Canadian machinists on strike returned to work, upon the advice of their clergy. These constituted almost one-half of the strikers. Moreover, the strike received little support from public opinion, and proved to be ill-timed. On October 5 it ended in complete defeat, the strikers vigorously denouncing their leaders for poor generalship. Two days later the company restored the union men to their positions. Another noteworthy strike was that of the employees of the cotton mills at Montreal, Hochelaga, and Valleyfield, lasting through part of May and all of June. The strikers demanded increased pay. They were, however, forced to yield, largely because of general trade conditions, returning to work on July 1 at the old rates.

ENGLAND. The year was notable for the great number of industrial disturbances. There were more trade disputes, involving more industries and workmen, than in any year in a decade. The disputes arose mainly from resistance to wage reductions, and, on account of a declining market and stocks already on hand, usually ended unfavorably to workmen. From January 1 to December 1 there were 357 disputes, involving 297,854 men, and resulting in an aggregate loss of 10,506,000 days of work and three million pounds in wages. This was five times the loss in the same period in 1907. In addition to these unusual conditions, the extent of unemployment (q. v.) was most serious. Resistance to wage reduction was the cause of one of the largest strikes of recent years. In the Manchester cotton mills wages had been advanced by 18 per cent since 1893, the last advance being 5 per cent in June, 1907. Early in 1908 a reduction was proposed by the employers. In August the Federation of Master Cotton Spinners of the Manchester district, by a majority of 92 per cent, decided to resort to lockout if necessary to enforce a reduction of 5 per cent. in wages, to take effect January 1, 1909. One month's notice of this intention was given to the employees. The latter refused to agree to the reduction, with the result that about 400 mills were closed on September 21, between 130,000 and 140,000 operatives being thrown out of work. After more than seven weeks, a compromise was effected in the first week in December, whereby the proposed reduction will not take place until March. This strike well illustrated the ruinous effects of industrial war. The loss in wages alone approximated \$18,000,000; and when to this was added the loss to the mills, to the railways, and to the coal dealers, the total reached almost \$40,000,000. A memorable strike of the Amalgamated Society of Engineers was brought to an end in September, after more than seven months' duration. The strikers included the workers engaged in various branches of the engineering and shipbuilding industries in Northumberland, Durham, and the North Riding. They struck to prevent a reduction in wages, but the condition of trade made success doubtful from the beginning. In February Mr. Lloyd-George had attempted to adjust matters, but his award was rejected by the workmen. They finally accepted more disadvantageous

terms, wages being reduced one shilling per week. The strikers received strike pay from union funds throughout the struggle. The long contest was carried on with much reckless obstinacy by the men, and was ended by the small majority of only 870 in a total of 8,348 votes.

FRANCE. France was the scene of several serious labor disturbances during the year. These seem to have been due only partly to a demand for better conditions of labor, being prompted largely by political agitators. In April occurred a lockout in the building trades. The men demanded a nine-hour day and increased pay. Because of lack of unanimity among the members of the employers' federation, the lockout affected only about 12 per cent. of the 200,000 employees. For this reason it failed, lasting from April 6 to 17. On June 2 occurred a serious conflict between strikers at Vigneux, a suburb of Paris, and soldiers, in which two of the former were killed and a number of strikers and soldiers wounded. The funeral of one of the slain strikers at Villeneuve-Saint-Georges was attended by fully 10,000 workmen from Paris, who engaged in many riotous manifestations. This was followed by a meeting of protest against the police, at which most incendiary language was used. On July 30 Paris workmen declared a one-day strike in the building trades in sympathy with strikers at Draveil. At the same time the General Confederation of Labor ordered strikes among the compositors, bakers, and cab-drivers. At Villeneuve-Saint-Georges streets were barricaded and the red flag displayed. After twenty futile summonses to disperse, the troops opened fire, killing four and wounding fifteen; of the soldiers 69 were wounded. The attempt was made to identify the strike with the socialistic propaganda, but with little success. The strike was in fact greatly weakened by the disavowal of the socialists of all participation in it. It collapsed when the executive officers of the Confederation were arrested. The Confederation at once elected new officers, who attempted to organize government employees, both civil and military, preparatory to a general strike that should paralyze all governmental activities. A twenty-four hours' general strike in fact was ordered for August 3, but only a few thousand out of the expected 100,000 responded; the unions repudiated the incitements of the Confederation. The premier did not believe the movement a protest against any industrial or social grievance, but "simply political treason against the State." See FRANCE.

DENMARK. During the third week in August no newspapers, except those of the Socialists, were published in Denmark, on account of a strike of compositors. This strike was undertaken in sympathy with several others in progress at that time, all of which were brought to an end by the successful mediation of M. Berg, the Minister of the Interior.

STROBEL, EDWARD HENRY. An American diplomatist, died at Bangkok, Siam, on January 15, 1908. He was born in Charleston, S. C., on December 7, 1855, graduated at Harvard in 1877, and in law there in 1882, and was admitted to the New York bar in 1883. He practised in New York in 1883-85; was secretary of the United States legation at Madrid in 1885-90; was third assistant secretary of state in 1883-1893, and envoy extraordinary and minister plenipotentiary to Ecuador from April to December, 1894, when he was transferred to Chile,

where he served till 1897. In the latter year he was appointed to arbitrate the Fréaut claim of France against Chile, and in 1899 he was counsel for Chile before the United States and Chilean Claims Commission in Washington. He was Bemis professor of international law at Harvard in 1898-1906, but after 1903 acted—under leave of absence—as general adviser to the Government of Siam. In 1903 he was appointed a member of The Hague Permanent Court of Arbitration. He published *The Spanish Revolution* (1898).

SUBMARINE BOATS. During the summer of 1908 the submarine flotilla of the Italian Navy participated in manœuvres, and the results were considered remarkably successful. These four ships, of 220 tons submerged displacement, made, without assistance, a run of nearly 1,300 nautical miles, from Venice on the Adriatic to Spezzia on the Mediterranean, where they participated in the August manœuvres of the combined fleet. In these manœuvres the *Glauco* was successful in hitting with the torpedoes the battleship *San Bon* twice, despite the extraordinary vigilance on the part of the patrol boats and extra watches maintained on the battleship. Italian submarines have been constructed during the last four years after a series of experiments with the *Delfino*, an old submarine, for many years used by the Italian Navy. In Great Britain submarine of 400 tons displacement, submerged, were able to make 600 knots with the gasoline supply carried by them, and the submarine fleet of the French Navy, which at the close of the year numbered about 100 vessels, showed records of nearly 700 miles. In the United States, Congress in 1908 authorized the construction of eight more submarine torpedo boats, in addition to twenty which had been already constructed for the navy. The technical value of the submarine is now well recognized, and certain authorities believe that it may displace the destroyer as a means of offense for the discharge of torpedoes. The submersible vessels in use during 1908 were able to dive in six minutes after running along the surface in cruising trim, and were said to have a submerged speed of 9 knots an hour, while their speed at the surface was about 15 knots. With the submarine torpedo boat must be considered the increased range of the torpedo itself (see **TORPEDO**), and in all manœuvres greater attention was being paid to practice with submarines and to attempts to ascertain their presence in the vicinity of battleships.

SUBWAYS. See **TUNNELS**.

SUCHER, JOSEF. An Austrian composer and conductor, died on April 4, 1908. He was born at Dobör, in Eisenburg, Hungary, on November 23, 1843. After receiving some preliminary musical instruction as a chorister in the Imperial Chapel, Vienna, he entered the University of Vienna as a law student, at the same time studying composition under Sechter. Subsequently he became leader of the Vienna Choral Society, and was appointed assistant conductor at the opera house. In 1876 he became conductor at the Stadt Theatre in Leipzig. Here he attracted widespread attention through his brilliant conducting of the rehearsals of Wagner's "Ring" cycle of music dramas. He conducted at the Hamburg Opera House from 1879 to 1888. In the latter year he was appointed conductor at the Imperial Opera House in Berlin. His

compositions include songs, anthems, and numerous choral and orchestral pieces.

SUDAN. The Anglo-Egyptian Sudan extends from Egypt southwards to Uganda and the Congo Free State, a distance of about 1,200 miles, and from the Red Sea to Wadai, in the French Congo. Area, about 950,000 square miles; population, about 2,000,000, including over 3,100 Europeans, and 10,000 Abyssinians, Egyptians, and East Indians. Khartoum, the capital, has 14,823 inhabitants (including suburbs, 75,504); Omdurman, 41,592. There is now a continuous line of cultivation on both slopes of the Blue Nile from Khartoum for a distance of several hundred miles, up to where the dense forests commence. The villages are numerous and prosperous looking. But the Blue Nile is not navigable for half the year, and a railway to Khartoum is needed to open a market for the agricultural produce of the region. The country between the Blue and White Nile has a rich soil, which would yield large wheat crops with artificial irrigation, but it is in an unhealthy condition. The total area under cultivation in 1907 was 1,423,971 acres, an increase of 415,329 acres over 1906. The Sudan Irrigation Service, in addition to its work on the various projects for increasing the water supply of Egypt, is planning the canalization of the Gezira, which will bring under cultivation large tracts of fertile soil, Durra, millet, sesame, pulse, wheat, and cotton are cultivated. The cotton production in 1906 amounted to 9,669,881 pounds. A cotton ginning plant has been erected at Zaidab, in the province of Berber. Vast forests, rich in fibres and tanning material, extend along the rivers. The province of Kordofan contains the finest gum forests; Bahr el Ghazal, the best rubber forests. The principal item of export in 1907 was gum, amounting to 20,393,620 pounds. The export of ivory in 1906 was 52,741 kilos, valued at nearly \$170,000. With the exception of certain small districts, the government exercises an ivory monopoly.

The total imports and exports in 1907 were valued at £1,214,859 and £357,729 respectively. Besides the military railway along the Nile to Khartoum, 1,047 miles long, there are the Nile-Red Sea railway, 311 miles long, running from Port Sudan and Suakim, on the Red Sea, to the mouth of the Atbara, about 20 miles south of Berber, and the Karima-Abu Hamed line, 138 miles long, which taps the Dongola province, joining the military railway at Abu Hamed. The Nile-Red Sea line has given rise to the new city of Port Sudan, which has displaced the old port of Suakim, 30 miles to the south, as the main Red Sea outlet of Sudan traffic. Port Sudan has substantial public buildings, a hospital, schoolhouse, public park, etc. Its streets are lighted by electricity, which also propels its street cars. Trains are running regularly to Khartoum. Over the Blue Nile a steel bridge 1,700 feet long is now being thrown for a railway from Khartoum almost to the Abyssinian border. The principal cities are in telegraphic communication with each other and with Cairo.

The administration is by a governor-general, who exercises supreme power, civil and military, and is appointed by the Khedive with the governor-general was Lieut.-Gen. Sir Reginald consent of the British government. In 1908 the

Wingate, Sirdar of the Egyptian army. The country is divided into 13 provinces, each under a governor who is a British officer in the Egyptian army. The province of Kordofan was to be divided into two provinces at the beginning of 1908. Darfur is under the rule of a native Sultan. The civil and criminal codes are based on those of India. A judicial commissioner sits at Khartoum, to whom an appeal lies from the provincial tribunals. The revenue and expenditure for 1908 were estimated at £1,000,201 and £1,379,964 (1£E=\$4.943). The regular annual deficit is covered by Egypt.

Tribes in South Kordofan having shown hostility to the government and refused to pay tribute, a small British force was sent against them in the autumn. The British stormed a hill and captured some of their chiefs, suffering slight loss themselves, but killing some sixty of the natives.

SUEZ CANAL. An artificial waterway connecting the Mediterranean and Red Seas, 87 miles in length. In 1907 it was passed by 4,267 vessels, of 14,728,434 net tons, against 3,075 vessels, of 13,445,504 net tons, in 1906. British ships numbered 2,651, of 9,495,868 net tons, or 64.5 per cent of the total tonnage, against 61.7 per cent in 1906. German ships numbered 580, of 2,253,651 tons, a gain of 98,099 tons over 1906. French ships numbered 239, of 806,786 tons, a loss of 49,525 tons from 1906. The tonnage of other nations in 1907 was: Netherlands, 632,089; Austria-Hungary, 439,997; Japan, 259,059, a gain of 111,780 over 1906; Russia, 239,350; Italy, 202,112; Denmark, 105,130; etc. The United States was represented by 9 vessels of 13,537 tons, against 22 vessels of 67,876 tons in 1906. The number of passengers was 243,580, of whom 84,033 were military (40,777 British, 18,680 Turkish, 16,688 French, and 5,593 German). The receipts in 1907 were £4,640,000, against £4,273,000 in 1906.

SUGAR. Mainly on account of prolonged dry weather during the summer of 1908 in nearly all sections of the sugar beet growing region of the United States, the yield of beets and the production of sugar fell below the figures given in early estimates. According to an estimate published in the *American Sugar Industry and Beet Sugar Gazette*, 3,658,621 short tons of beets were worked by the beet sugar factories during the campaign of 1908-09 as compared with 3,767,871 short tons the previous year, while the production of beet sugar for the two seasons was given as 421,244 and 463,628 short tons respectively. The Secretary of Agriculture, however, in his report issued Dec. 14, 1908, placed 1908 at the top in the production of sugar beets for sugar and in the value of the crop to the farmer. He stated that while the figures were not much above those for 1906 and 1907 the tonnage of beets for 1908 was higher by 44.7 per cent. and the value, \$21,500,000, by 43.7 per cent., than the corresponding average figures for the preceding five years. The beet sugar production from this crop was estimated at about 500,000 short tons, worth at the factory, with the pulp, about \$45,000,000 or more than in any preceding year. As compared with a full crop, the Department of Agriculture rates the crop of 1908 at 87.7 per cent., that of 1907 at 89.5 per cent., and that of 1906 at 93.8 per cent. During the campaign of 1908 63 out of 68 factories were in operation and one factory, located at Corcoran, Cal., was

built during this year. Absolute figures on beet sugar production are not available at the end of the calendar year, because the factories had not all finished their runs.

The report mentioned above placed the plantation value of sugar cane, molasses, and sirup in the United States for 1908 at about \$34,000,000, a value exceeded only in 1904 and greater by 9.7 per cent. than the average value for the preceding five years. The production of raw sugar from cane in 1908 was commercially estimated at 407,000 short tons. The total value of the sugar beet and the sugar cane to the grower was placed at \$56,000,000. The combined production of beet and cane sugar is estimated at about 900,000 short tons, and the factory value of the two kinds of sugar was supposed to be \$75,000,000, holding the record place. The grand total value for the year of all sugar products and sugar factory by-products, based mostly on commercial estimates, is given at \$94,000,000. Statements prepared by the Bureau of Statistics of the Department of Commerce and Labor show that the sugar consumption in the United States for 1907 amounted to 7,089,667,975 pounds, or 82 3-5 pounds for every man, woman, and child in the country. At an average retail price of 5¼ cents a pound this means an expenditure of 372 million dollars, or more than one million dollars per day for sugar. The statement further showed that 21.3 per cent. of the sugar consumed in 1907 was of home production, 17.7 per cent. from our island possessions, and 61 per cent. was imported from foreign countries. Of 4,366,700,000 pounds received from foreign countries, 3,236,500,000 pounds came from Cuba. The world's sugar production for 1907 was 32,179,700,000 pounds. According to Willett and Gray the consumption of refined sugar in the United States in 1908 was 3,022,153 tons, of which the American Sugar Refining Company manufactured 1,364,286 tons, or 45.14 per cent., as against 1,147,712 tons, or 37.98 per cent, manufactured by the independent refiners. The average percentage of sugar extracted from beets during the period 1904-8 was 13.74 per cent. for Austria, 11.86 per cent. for France, and 13.39 per cent. for Germany. Claus Spreckels, the well-known sugar manufacturer, died at San Francisco Dec. 26, 1908.

SUMATRA. An island of the Malay Archipelago, forming a part of the Dutch East Indies (q. v.). Area, 184,768 square miles. Population in 1905, 4,029,505. There are large deposits of coal and tin. The petroleum production has become important, the greater part of the output from the Dutch East Indies coming from Sumatra. The output of coal in 1907 was 288,969 pounds. In 1908 the sale of Sumatra tobacco at Amsterdam and Rotterdam was 252,665 bales, at an average price of 36½ cents per half kilo (1.1 pound). The 1908 crop of Sumatra tobacco was estimated at 274,764 bales. The "culture system," under which the natives had to render forced labor on government coffee plantations, prevailed in the West Coast province until March 1, 1908. The production of coffee on government account in 1907 was 2,439,004 pounds, and on private account, 13,710,432 pounds, against 2,598,008 and 11,142,072 respectively in 1906. Under the "culture system" the natives paid no taxes to the government, but were compelled to render labor on government coffee plantations, and to sell to

the government the coffee which they cultivated on their own account at the low price of 15 florins (\$6.03) per picul of 136 pounds. This system has been abolished since March 1, 1908. The natives of the West Coast province are left free to cultivate and sell coffee on their own account, the government levying instead an income tax of 2 per cent. In order, however, to prevent traders from combining to force down the price of coffee, the government will continue to buy at a special price coffee from the natives whenever they choose to sell to it. Sumatra is one of the outposts of the Dutch East Indies, and is partly governed directly by residents, partly by assistant-residents, controllers, etc., the whole island being under a governor, who is subordinate to the governor-general of the Dutch East Indies. For its various administrative divisions see DUTCH EAST INDIES.

SUN. See ASTRONOMY.

SUNDAY SCHOOL UNION, AMERICAN. A religious organization, founded as the Philadelphia Sunday Adult School Union in 1817, and as the American Sunday School Union in 1824. Its object is to establish Sunday schools in the United States wherever needed and to provide them with suitable literature. During the 84 years of its existence, the union has organized 117,558 Sunday schools, having 642,641 teachers and 4,648,954 pupils. In the first eight years of the new century, 1901-1908, 77,732 conversions were reported in the Sunday schools of the union; 856 churches of different denominations followed from these; 169,724 copies of the Scriptures were provided, chiefly for the destitute; and an average of 265 missionaries were employed each year. The union has missionaries in every State in the Union. It is supported entirely by voluntary contributions. The headquarters are at 1816 Chestnut street, Philadelphia. The union lost its president, Morris K. Jesup, by death during the year. The secretary of missions is J. M. Andrews.

SUN SPOTS. See ASTRONOMY.

SURINAM. See DUTCH GUIANA.

SVEN HEDIN. See EXPLORATION.

SWARTHMORE COLLEGE. An institution of higher learning at Swarthmore, Pa., founded in 1869. In the autumn of 1908 the attendance was 307. In 1908 a new library building and a new engineering shop building was opened for the use of students. The foundation was laid for a new section of Wharton Hall, a young men's dormitory. A contract has been made for the largest telescope and one of the best astronomical equipments on the Atlantic Coast. The present endowment of the college is about \$1,000,000, and the faculty numbers 36. The president is Joseph Swain.

SWAZILAND. A British protectorate in South Africa, formerly attached to the Transvaal, since 1906 under the immediate jurisdiction of the High Commissioner for South Africa. Area, 6,536 square miles; population (1907), 90,890. In 1904 there were 890 whites. Most of the monopolistic concessions granted by the native chiefs have been expropriated. The native chiefs retain jurisdiction in civil disputes between natives, with an appeal to magistrates' courts. Alluvial tin is mined. The natives cultivate maize, millet, ground-nuts,

beans, sweet potatoes, etc., for their own needs. Attempts are being made to introduce cotton culture. The protectorate is included in the South African Customs Union (see **BRITISH SOUTH AFRICA**). The resident commissioner in 1908 was R. T. Coryndon.

SWEDEN. A kingdom of the Scandinavian peninsula. Area, 172,876 square miles. Population in 1900, 5,136,441; estimated Dec. 31, 1907, 5,377,713, of whom 1,306,469 were in the cities. In 1906 there were 32,444 marriages, 136,722 births (exclusive of still-births), and 76,372 deaths, giving an excess of births over deaths of 60,350. The rate per 1,000 of population was: Marriages, 6.1; births, 25.7; deaths, 14.4; natural increase, 11.3. In 1906 the number of immigrants was 9,581, and of emigrants 24,704; in 1907 the emigration was 22,893. The population of the principal cities at the end of 1907 was as follows: Stockholm, the capital, 337,460; Göteborg, 160,523; Malmö, 79,817; Norrköping, 45,203; Hälsingborg, 32,238; Gäfle, 31,367; Örebro, 28,078; Eskilstuna, 27,444; Karlskrona, 26,293; Upsala, 24,635; Jönköping, 24,174.

FORESTRY AND AGRICULTURE. The yearly gross capacity of the forest production is estimated at 34,530,000 cubic metres. But not all of this can be made useful, and it is supposed that over 5,000,000 cubic metres rot away in the forests, whereby the effective production is reduced to 29,336,000 cubic metres yearly. According to investigations about the uses of raw materials, there is consumed very near 31,000,000 cubic metres annually, partly within the country and partly for export. Thus the annual consumption exceeds the effective production by over 1,600,000 cubic metres, a deficit that might be more than avoided, if the large quantities that rot away in the forests could be utilized. The larger forest owners generally take good care of their properties by employing persons specially educated in forestry, while the contrary in most instances is the case with the smaller forest owners; for this reason it is proposed that through the laws there should be taken measures for the preservation of the forests, and that the government should buy forest grounds to a larger extent than heretofore. Over one-half the value of the exports consists of forest products—wrought and unwrought timber, pulp, and paper. The number of farms in 1905 was 352,897, of which 88,827 were of two hectares (1 hectare=2.47 acres) and under; 223,186 contained 2 to 20 hectares; 33,552 were of 20 to 100 hectares; and 3,257 contained over 100 hectares. The wheat crop in 1907 was 5,953,000 bushels; rye, 21,570,000; barley, 13,550,000; oats, 67,741,000; maslin (mixed barley and oats), 12,770,000; potatoes, 52,270,000. The production of sugar beets in 1907-8 was 756,000 metric tons; in 1908-9, 920,000. At the end of 1905 there were in Sweden 554,999 horses, 2,549,928 cattle, 1,074,386 sheep, and 829,888 pigs.

MINING AND METALS. In 1906 there were 31,876 persons engaged in mining. The ore production of 1906 was, in tons: Iron, 596,400; silver and silver lead, 1,938; copper, 19,655; zinc, 52,552; manganese, 2,680; sulphur pyrites, 21,827. The coal raised in 1906 was 296,980 tons. The production of pig iron in 1907 was 603,400 tons, against 596,400 in 1906. Other metals produced in 1906 were: Gold, 20.32 kilos; silver, 938 kilos; lead, 753 tons; copper, 1,209 tons; zinc, 175 tons; steel, 391,352 tons.

MANUFACTURES. The most important manufacturing industries are the sawing and planing mills, of which there were 1,281 in 1905, employing 38,568 workers and turning out a product valued at 135,570,000 crowns (1 crown=26.8 cents); iron and steel mills, with 20,700 workers and 63,032,000 crowns' worth of product; machinery works, with 23,316 workers and 65,711,000 crowns' worth of product. Other important industries are: Furniture, wood-pulp, paper, sugar, and cotton and wool spinning and weaving. The margarine production now exceeds the home consumption; the exports were 1,400,000 pounds in 1906, and 2,500,000 pounds in 1907. The beet sugar production was 111,000 tons in 1907-8, and 133,900 tons in 1908-9. The sugar manufacturers of southern Sweden formed in 1907 a company, or trust, capitalized at \$38,100,000, the actual value of the factories being estimated at \$16,000,000. There was also organized in 1907 the Association of Swedish Distillers, representing 10,038,000 gallons of the total yearly production of 10,566,000 gallons of whiskey. The trust formed in 1906 by 18 match-manufacturing companies for the sale of matches has been quite successful, and has overcome the Japanese match competition in India. In 1908 it was negotiating for a combination with a Japanese company, in order to obtain a supply of matchwood, which is growing scarce in Sweden and Russia. During the year ending Aug. 31, 1908, the cotton spinning establishments employed 390,000 spindles, over 228,000 running short time, and the total consumption of cotton was 88,857 bales (77,368 American and 11,224 East Indian). The cellulose production of 1908 was estimated at 450,000 tons sulphite and 108,000 sulphate, against 383,000 and 78,000 tons, respectively, in 1907. The annual value of the manufacture of machines and implements for dairy work is about \$3,000,000, seven-eighths being for export. The largest establishment devoted to this industry in Stockholm employs over 1,200 skilled workmen. The annual export of scientific instruments of precision is valued at over \$800,000.

COMMERCE AND COMMUNICATIONS. In 1906 the imports and exports amounted to 644,228,000 and 504,285,000 crowns (1 crown=26.8 cents) respectively, against 582,084,000 and 450,212,000 crowns in 1905. The principal imports in 1906 were, in crowns: Coal, 55,483,000; cereals, 42,538,000; coffee, 29,157,000; machinery, 27,067,000; iron manufactures, 23,811,000; hides and skins, 22,666,000; cotton, 19,891,000; wool, 17,915,000; copper, 17,078,000; fish, 16,399,000; petroleum, 16,354,000; oil cakes, 16,221,000. The principal exports in 1906 were: Timber, 169,447,000; iron, 80,383,000; wood-pulp, 45,206,000; butter, 31,912,000; paper, 27,235,000; machinery, 20,563,000; iron manufactures, 19,546,000; furniture, etc., 11,795,000; matches, 10,017,000. The trade with the principal countries of origin and destination in 1906 was as follows, in crowns:

From and to	Imports	Exports
Norway	25,124,000	35,401,000
Russia and Finland.....	32,782,000	17,806,000
Denmark	42,368,000	55,042,000
Germany	234,021,000	96,597,000
Netherlands	15,129,000	26,328,000
Belgium	10,277,000	13,706,000
Great Britain.....	160,723,000	170,960,000
France	20,429,000	37,050,000
United States.....	60,009,000	11,658,000

On Jan. 1, 1907, the merchant marine consisted of 1,090 steamers, of 488,362 tons, and 1,852 sailing vessels, of 253,999 tons. The length of railway at the end of 1907 was 8,218 miles, of which the State owned 2,693 miles; of State telegraph lines in 1906, 6,043 miles; and of railway telegraph lines, 5,115 miles.

FINANCE. The budget for 1909 balanced at 216,932,000 crowns. The principal estimates of revenue were: Customs, 58,000,000; post office, 21,000,000; telegraphs, 11,500,000; railways (net), 9,500,000; forests, 8,500,000; income tax, 26,000; excise, 44,900,000. The principal estimates of expenditure were: Army, 58,325,500; navy, 25,964,900; post office, 19,520,000; telegraphs, 11,115,740; worship and education, 24,722,100; reserve for workers' invalid and accident insurance, 1,900,000. The public debt stood on Jan. 1, 1908, at 464,359,844 crowns, contracted almost exclusively for railway construction.

ARMY. The army is a modified militia, resembling that of the Netherlands. Military service, under the new regime inaugurated in 1907, is partly by voluntary enlistment and partly by conscription. The voluntarily enlisted men form a strong nucleus or skeleton army which is filled up by conscriptions, to which all citizens between 21 and 42 years of age are liable, with the usual exceptions. Service is for 8 years in the first ban, 4 in the second, and 8 in the third, or Landstorm. The initial training periods are 150 days for dismounted and 281 days for mounted troops; dismounted men are subsequently called up 3 times for 30 days each time, in the remaining 7 years of active service, and mounted men twice, for 42 days each time. There are 28 regiments of infantry; 10 of cavalry; 6 of field, and 1 of garrison artillery; 12 howitzer, 7 heavy and 3 horse artillery batteries; 4 battalions of engineers and auxiliary troops. The field army has a strength of 100,000 combatants, and the reserve troops of the second line have an equal strength. The peace strength is about 62,000, and the nominal war strength is about 350,000 of all grades.

NAVY. At the beginning of 1908 the effective navy consisted of 18 armored coast defense vessels, aggregating 50,300 tons; 1 armored cruiser, 4,060 tons; 7 armored gunboats, 3,220 tons; 4 gunboats, 1,816 tons; 8 destroyers, 5,360 tons; 27 torpedo boats, 1,930 tons; total, 65 ships, of 66,686 tons, besides 1 submarine. During 1907 there was an increase of 14,406 tons. The crews numbered 4,682 officers and men.

GOVERNMENT. King Gustaf V., born June 16, 1858, succeeded on the death of his father, Oscar II., Dec. 8, 1907. The cabinet at the end of 1908 was as follows: Minister of State, Solomon Arvid Achates Lindman; foreign affairs, Eric Birger Trolle; justice, Gustaf Albert Petersson; agriculture, Alfred Petersson; church and education, Ake Hugo Hammar skjöld; finance, Carl Johan Gustaf Swartz; interior, Count H. E. G. Hamilton; marine, Capt. Count Carl August Ehrensward; war, Maj.-Gen. O. B. Malm; counsellors of State (without portfolio), C. F. W. Hedestierne and G. W. A. Boos.

HISTORY. On Jan. 1, 1908, King Gustavus V. opened the Riksdag. The speech from the throne laid special stress on proposed legislation for the reorganization of the army and navy with a view to increasing the defensive power of the nation, the adjustment of taxation, and the

working out of schemes for workers' insurance and old age pensions. No legislation, it was stated, would be proposed on the subject of female suffrage until the electoral reform received the confirmation of a new legislature after a general election.

In March an agreement was made with Germany for the establishment of direct railway transport between the two countries by a service of powerful ferries between Trelleborg, in Sweden, and Sassnitz, in Pomerania. On April 23 two important international agreements were signed with Sweden's participation. In St. Petersburg representatives of Russia, Germany, Denmark, and Sweden signed a convention guaranteeing the maintenance of the territorial *status quo* in the Baltic. A parallel agreement regarding the North Sea was signed at Berlin by the representatives of Germany, Great Britain, France, the Netherlands, Denmark, and Sweden. In each convention the signatory powers agreed that, in the event of the territorial *status quo* being threatened, they would communicate with a view to joint action for its maintenance. A memorandum was attached to each convention to the effect that the agreement cannot be appealed to when the free exercise of sovereign rights in their possessions by the signatory powers is concerned. During the same week Great Britain, France, and Sweden agreed to the annulling of the prohibition to fortify the Aland Islands, in the Gulf of Finland, laid upon Russia by the Treaty of Paris of 1856. The conclusion of the Baltic Sea convention removed all causes of tension between Russia and Sweden, and in May, Prince William, second son of King Gustavus, married the Russian Grand Duchess Marie. Foreshadowing these conventions, the Swedish foreign minister declared in the second chamber of the Riksdag in February that Sweden did not desire a guaranteed neutrality, but would defend her independence in case of war. The government had not asked for a guaranty, but did not wish to reject projects that had been brought forward for the maintenance of the *status quo* in the Baltic.

On April 26 the English king and queen visited King Gustavus in Stockholm. Later in the year the visit was returned by the Swedish king and queen, who arrived at Windsor on Nov. 18. Early in June both chambers of the Riksdag adopted a proposal, submitting to arbitration the delimitation of the sea boundary between Norway and Sweden. Other important measures passed by the Riksdag, which closed early in June, were for the increase of the sugar tax, the purchase of the Svapavara mines by the State, the electrification of the State railways, and the establishment of a special administration for the waterfalls.

At the end of June there was a dock laborers' strike at Gothenburg, Malmö, and other towns. The arrival of British strike breakers led to conflicts between the mob and the police.

SWIMMING. The Olympic games brought into competition several of the best swimmers in the world. England scored the largest number of points in the swimming events, being especially strong in the distances. The United States, with C. M. Daniels, of the New York A. C., competing, excelled in the sprints. The principal contests were: 100 metres, won by C. M. Daniels in 1 m. 53-5s.; 200 metres (breast stroke), won by Holman, England, in 3m. 9 1-5s.;

400 metres, won by Taylor, England, in 5m. 36 1-5s.; 1,500 metres, won by Taylor, England, in 22m. 8 2-5s.; 100 meters (back stroke), won by Bieberstein, Germany, in 1m. 24 3-5s.; 200 metres (team competition), won by England in 2m. 55 1-5s.; high diving, won by Johansson, Sweden; fancy diving, won by Zurner, Germany.

In the United States, the national championships, conducted by the Amateur Athletic Union, were held at Chicago, Pittsburg, and New York during March. Some of the more important senior events, winners and time, were: 50 yards, M. Schwartz, Missouri A. C., 27 2-5s.; 150 yards (back stroke), A. M. Goessling, Missouri A. C., 2m. 1-5s.; 200 yards (breast stroke), A. M. Goessling, 2m. 46 2-5s.; 220 yards, C. M. Daniels, New York A. C., 2m. 36 4-5s.; 500 yards, L. B. Goodwin, New York A. C., 7m. 25s.; 1,000 yards, L. B. Goodwin, 14m. 13 3-5s.; 440 yard relay, New York A. C., 4m. 13 3-5s. (record time); plunge, C. L. Brown, Illinois A. C., 74 feet; fancy diving, G. Gaedzik, Chicago A. A. The open water championships were held at Travers Island in September. C. M. Daniels won the 440 yards in 5m. 54s. Other events were: 880 yards, L. B. Goodwin, 13m. 23s.; one mile (Sheepshead Bay), C. M. Daniels, 27m. 20 3-5s.; five miles (New Rochelle), L. B. Goodwin, 2h. 10m. 25s. In water polo the New York A. C. team defeated the Bath Beach S. C. 12-0 and tied the Chicago A. A. 1-1. Upon the refusal of the Chicago team to play an extra period, the tie game was awarded to the New York A. C.

The Intercollegiate Swimming League Championship was won by Pennsylvania, with 5 victories and 1 defeat. Princeton was second, with 4 games won and 2 lost. The standing of the other teams was: Harvard, won 3 and lost 2; Yale, won 3 and lost 2; Columbia, won 1 and lost 4; C. C. N. Y., won 0 and lost 5. Yale won the water polo championship, winning 5 games and losing 1. Pennsylvania won 4 and lost 2; Columbia won 3 and lost 2; Princeton won 2 and lost 3; C. C. N. Y. and Harvard each won 1 and lost 4. An extra meet was made necessary because of the tie of Pennsylvania and Princeton in the swimming matches and of Yale and Pennsylvania in water polo. New college records made in 1908 were: 50 yards, Dennison, of Princeton, 26 2-5s.; 100 yards, P. Withington, of Harvard, 1m. 2 2-5s.; 800 feet relay, Pennsylvania, 2m. 40 4-5s.; plunge for distance, Beatty, of Yale, 72 feet.

SWINE. See STOCK RAISING.

SWITZERLAND. A republic of Central Europe. Area, 15,975 square miles. Population in 1900, 3,325,023; estimated in 1907, 3,525,256. In 1907 there were 27,660 marriages, 97,692 births (exclusive of 3,185 still-births), 62,445 deaths, and 5,710 emigrants. The population of the principal cities in 1908 was: Bern, the capital of the Confederation, 74,651; Zürich, 186,909; Basel, 129,470; Geneva, 118,256; Lausanne, 55,741; St. Gallen, 54,127; Chaux-de-Fonds, 42,188; Lucerne, 35,433; Bienne, 27,881; Winterthur, 27,031; Neuchâtel, 23,395; Fribourg, 19,844.

PRODUCTION. In 1905 there were 564,022 enterprises, of which 250,066 were in agriculture, 242,543 in arts, industries, and commerce, and 71,413 in domestic industries. In 1907 the wheat production was about 4,000,000 bushels—the average for several years past. Switzerland depends upon foreign imports of cereals. The

importation of wheat in 1907 was 468,405 metric tons, of which 233,577 was from Russia, 125,671 from Rumania, 44,475 from Argentina, 15,895 from Austria-Hungary, 14,084 from the United States, and 13,359 from Canada. The importation of wheat flour was 38,855 metric tons—mainly from Germany and France. The wine production in 1907 was 23,760,000 gallons. The old vineyards have been attacked by phylloxera, in fighting which the Federal government has already spent some 2,500,000 francs. It has now been decided to replace the old vines with the more robust American vines. To aid the planters in reconstituting their vineyards, the government has voted an annual appropriation of 500,000 francs, to extend over a period of 60 years. The production of sugar beets in 1907-8 was 27,230 metric tons; for 1908-9 it was estimated at 30,000 tons. The production of beet sugar in 1907-8 was 3,568 tons; for 1908-9 it was estimated at 3,500 tons. The Federal government exercises control and a virtual monopoly over the manufacture and sale of spirituous liquors. The consumption of alcoholic liquors and denatured alcohol in 1907 was 4,224,428 gallons, of which 1,735,081 gallons was for drinking, and 2,489,347 gallons for technical and household purposes. Of the total consumption, only 956,458 gallons were of home production. The manufacture, importation, and sale of absinthe was prohibited on July 5, 1908, by a popular vote of 236,582 against 135,888. The French cantons, where absinthe is consumed, rejected the proposal by a small majority, but the vote in the German cantons, where absinthe is but little used, turned the tide in its favor. See *History*.

Another constitutional amendment adopted on July 5, 1908, empowers the Federal government to enact regulations concerning trades and handicrafts. This will lead to a unification of the laws affecting the relations of capital and labor, the settlement of trade disputes, the ordinances regarding apprenticeship, factory regulations, etc. In 1907 there were in Switzerland—exclusive of the domestic industries—7,278 manufacturing establishments, employing 307,128 workers, against 6,080 factories and 242,534 workers in 1901. There was thus an increase of 19 per cent. in the number of manufacturing establishments and 26.6 per cent. in the number of workers. The cotton industry employed during the year ending Aug. 31, 1908, 1,493,012 spinning spindles, and consumed 343,045 bales of cotton (245,976 American, 50,838 East Indian, and 19,665 Egyptian). The number of twister spindles was 57,296 on Jan. 1, 1907; of looms, 18,842. During 1907 there was a large increase in looms, and the estimate in 1908 was near 25,000. Most of the mills are small, the average number of spinning spindles in a mill being 22,000. There are four yarn mills containing 50,000 spindles each, the largest one being at Zürich, with 180,000 spindles. The watch-making industry employed, in 1907, 115,617 persons (55,988 male and 59,629 female), of whom 52,752 were watchmakers (33,378 men and 17,734 women). Of the total number employed in the watchmaking industry, 42.4 per cent. were in the canton of Bern, 34.2 per cent. in Neuchâtel, 7.5 per cent. in Solothurn, 6 per cent. in Vaud, and 4.2 per cent. in Geneva. In recent years the productive capacity of the watchmaking establishments was increased by a third. The number of watch cases stamped

in 1907 was 3,795,629 (657,502 gold and 3,138,127 silver cases), against 4,226,696 in 1906 (818,565 gold and 3,408,131 silver). The depression in the trade was even more marked in the first four months of 1908, when the number of cases was 897,923, against 1,337,826 during the first four months of 1907. In some cases the cantonal government lent assistance to the local industries, in order to give employment to the people in the factories.

The lack of coal deposits in the country is largely compensated for by the abundance of water-power, of which 750,000 horsepower is capable of utilization, and about 250,000 is actually utilized. In 1901 water-power was used by 2,058 factories, with 185,486 h.p., against 1,471 factories using steam-power, with 84,030 h.p., and 1,213 factories using electricity, with 37,413 h.p. Water-power is largely used by electrical works. In 1906 a resolution by the National Council was adopted, providing that for the next three years the transmission into foreign countries of electric energy generated by domestic water-power must be dependent upon a permit granted by the Federal Council. In the meantime the agitation in favor of a constitutional amendment, granting to the Federal government complete control over the water-power of the country, was continued. This amendment was submitted to the people on Oct. 25, 1908.

COMMERCE AND COMMUNICATIONS. The special imports and exports in 1907 amounted to 1,736,172,491 and 1,188,980,117 francs respectively, against 1,554,194,432 and 1,103,359,461 francs in 1906. Included in the totals for 1907 were 48,745,803 and 36,041,858 francs, respectively, of coin and precious metals. The principal imports for domestic consumption in 1907 were: Animals, 55,613,000 francs; coal, coke, and briquettes, 93,074,000; raw cotton, 50,518,000; cotton yarn, 20,322,000; cotton fabrics, 61,816,000; manufactures of flax, hemp, jute, etc., 21,206,000; cereals and flour, 175,100,000; wrought iron and steel and their manufactures, 93,661,000; pig iron, 12,075,000; leather and its manufactures, 35,066,000; machinery and locomotives, 42,202,000; thrown and spun silk, 200,684,000; chemicals, 33,564,000; sugar, raw and refined, 30,283,000; wearing apparel, 49,668,000; raw wool, 21,832,000; wool yarn, 10,045,000; woolen manufactures, 42,176,000. The principal exports of domestic produce and manufacture in 1907 were: Cheese, 54,183,000 francs; condensed milk, 31,445,000; chocolate, 31,278,000; cotton piece goods, 39,230,000; cotton ribbons, embroidery, and lace, 184,754,000; cotton yarn, 16,804,000; machinery and locomotives, 73,582,000; thrown and spun silk, 121,470,000; silk manufactures, 170,573,000; watches and clocks, and parts of, 149,268,000. The special trade with the leading countries of origin and destination in 1907 was as follows, in francs:

From and to	Imports	Exports
Germany	551,326,000	281,868,000
France	297,768,000	121,278,000
Italy	230,288,000	83,152,000
Austria-Hungary	102,995,000	65,826,000
Great Britain	117,920,000	188,524,000
Belgium	33,941,000	20,342,000
Roumania	36,347,000	6,516,000
Russia	70,674,000	33,404,000
United States	70,144,000	159,561,000
All other America	54,374,000	67,166,000
Asia	46,210,000	43,279,000
Africa	81,075,000	13,663,000
Australia and Polynesia	10,849,000	6,167,000

On Jan. 1, 1907, the length of railways was 2,915 miles, over one-half being owned by the Federal government; of State telegraph lines, 3,604 miles.

BANKING. In 1906 there were 36 banks of issue. On June 20, 1907, the National Bank, with headquarters in Bern and Zürich, commenced operations, the legal requirements being that at least one-half of the capital of 50,000,000 francs should be paid up, and that branches should be organized in no less than four banking centres. According to the banking law of 1905 the old banks of issue were to withdraw one-twelfth of their note circulation every three months, so that by the end of three years from the date of its opening the National Bank would be entitled to its maximum issue, which is to be 240,000,000 francs. But shortly before and soon after July 20, 1907, no less than 9 banks of issue renounced their privilege, which thus accrued to the National Bank. At the end of June, 1907, the circulation of the National Bank was about 57,000,000 francs, and of the old banks of issue 190,000,000. By the end of Feb., 1908, the National Bank circulation increased to 124,000,000, while that of the old banks decreased to 106,000,000.

GOVERNMENT. The Swiss Confederation is composed of 22 cantons, each sovereign within its own sphere. The executive power of the Confederation is vested in a Federal Council of 7 members, elected for three years by the Federal Assembly. The president and vice-president of the council are chosen by the Federal Assembly from among the councillors for one year. The president of the council is president of the Confederation; for 1908 Dr. E. Brenner was chosen, and for 1909 Dr. A. Deucher. The legislative power is vested in the Federal Assembly, consisting of the council of estates and the national council, the two houses having equal authority in all matters. The council of estates, or Federal Senate, consists of 44 members, 2 from each canton, the mode of election, tenure, remuneration, etc., being left for the determination of the cantons. The national council is composed of 167 members, elected by direct universal suffrage for three years, one deputy for every 20,000 inhabitants. The number of deputies allotted to each canton varies from 29 for Bern to 1 each for Uri and Zug. The powers of the Federal government extend to war, peace, treaties, army, money, post and telegraphs, weights and measures, foreign trade, copyright, bankruptcy, patents, public works affecting the whole or a large part of the country, the regulation of rivers and forests, the construction of railways, etc. The principles of the referendum and popular initiative have been applied to the Federal government, as well as to that of several of the cantons. In some of the smaller cantons the government is a direct democracy.

FINANCE. The revenue and expenditure of the Confederation for 1907 amounted to 145,914,260 and 139,310,086 francs, respectively; for 1908 they were estimated at 147,025,000 and 148,190,000 francs, respectively. The principal estimates of revenue for 1908 were: Customs, 70,880,000 francs; posts, 51,948,400; and telegraphs, 13,718,000; and of expenditure: Public debt, 6,268,500; military, 39,557,546; posts, 49,350,100; and telegraphs, 13,718,500. The revenue and expenditure of the Federal railways are not included in the budget. The Federal

debt stood on Jan. 1, 1908, at 98,779,086 francs, and the Federal assets at 294,371,352.

ARMY. The army is a national militia in which service is compulsory and universal between the ages of 17 and 49 years, actual service beginning at the age of 20. Exemptions are few, except for physical disability, and those who are excused or rejected pay certain taxes in lieu of service. The first 13 years (11 for cavalry) is spent in the *Auszug* or *Élite*, which constitutes the first line; the next 8 years (12 for cavalry) in the *Landwehr*; and the remaining 8 years (6 for cavalry) in the *Landsturm*, which is divided into two parts. The "armed" *Landsturm* includes all who have passed through the *Auszug* and *Landwehr*, and those fit to bear arms who have not been so trained; the "unarmed" *Landsturm* comprises all other males between 20 and 50 years of age, whose service can be utilized as non-combatants. The initial periods of training are 65 days for infantry, 75 for field artillery, and 90 for cavalry troops; the infantry has 7, and the cavalry 8, subsequent periods of training of 11 days each, after which all under the rank of sergeant are excused from further attendance. The *Landwehr* men are called out once for 11 days training. The field army consists of 4 army corps with a total of 200,000 combatants, in addition to which there are 21,000 fortifications troops, and the armed *Landsturm* of about 50,000. The peace army consists of 139,514 men of all grades in the *Élite*, and 94,384 in the *Landwehr*, making a total of 233,898.

HISTORY.

PROHIBITION OF ABSINTHE. On July 5, 1908, the law forbidding the sale and manufacture of absinthe was carried by popular vote. The campaign against the consumption of absinthe had lasted three years. In the summer of 1905 a murder and suicide, caused by absinthe intoxication, in the canton of Vaud, greatly aroused public feeling, and a petition with 83,000 signatures was presented to the government of the canton for the suppression of the traffic in the liquor. The government, after consulting a commission of jurists and physicians, passed a law prohibiting the retail trade in absinthe throughout the canton, to go into effect on Jan. 1, 1907. The absinthe dealers and manufacturers demanded a referendum, but the law was approved by a vote of 23,000 to 15,000, and though appeal was made to the Federal Council, the right of the canton to take this action was sustained. The same course was followed in the canton of Geneva, where nearly double the quantity of absinthe was annually consumed, and a prohibitory measure was passed, to go into effect on Jan. 1, 1908. This attacked only the retail trade. The manufacture and wholesale trade could be reached only by the Federal government. Accordingly the Anti-Alcoholic League petitioned the Federal authorities to incorporate in the constitution a clause prohibiting the manufacture, importation, or sale of absinthe throughout the Confederation. The petition was signed by 168,000 citizens. The Federal Council was opposed. The government, while admitting the evil, argued that the best means of suppression were persuasion and popular education. Moreover, though its consumption was extensive in the French cantons, it was little known in the German cantons, that is, in the greater part of the Confederation. In the Federal Assembly, however, the deputies of the French cantons

presented strong arguments, which finally prevailed, and the proposal of the petitioners was approved. The State Council having concurred in this decision, the measure was submitted to the people and carried by 100,000 votes.

LABOR MEASURES. On the same day (July 5) that the above measure was voted, the people approved the addition to the constitution of an article empowering the Federal government to make laws affecting the arts and crafts. For many years a Federal code that would afford the same legal protection to small industries that the large industries possessed had been under consideration. In 1894 a similar addition to the powers of the Confederation had been proposed, but was rejected by the popular vote, public opinion not being clearly informed of the government's intentions. The new measure authorizes the government to make laws for the regulation of apprenticeship, labor contracts, associations of employers and employees, for the suppression of the abuses of strikes, the establishment of means of arbitrating industrial disputes, etc. On Oct. 7 the National Assembly passed the bill for insuring workmen against sickness and accident. An earlier project providing for an obligatory system of Federal insurance with a costly bureaucratic organization was rejected by popular vote. The new bill established insurance against sickness on the principle of Federal cooperation with private initiative providing for Federal subvention of existing sick benefit societies. For insurance against accidents it provided for a state establishment with a capital of 10,000,000 francs, the state to pay half the cost of maintenance and a certain quota of the premiums, the rest to be contributed by employers and employees in the ratio of three to one; insurance in it to be obligatory on all employers and employees in occupations mentioned in the law.

SYRACUSE UNIVERSITY. An institution of higher learning at Syracuse, founded in 1870. The attendance in 1908 was 3,204, distributed as follows: Liberal arts, 1,422; fine arts, 880; medicine, 152; law, 180; applied science, 390; teachers college, 102; summer school, 189. The total property owned and used by the institution was valued in 1908 at \$2,874,532. The entire investments at the end of the year were \$2,108,373. The faculty numbers 220, and the library contains 90,000 volumes. The president is James R. Day.

SYRIA AND PALESTINE EXCAVATIONS IN. See *ARCHÆOLOGY*.

TAFT, CHARLES P. An American newspaper publisher. He was born in Cincinnati on December 21, 1843, graduated at Yale in 1864, and at the Columbia College Law School in 1866; and also studied at Heidelberg, Berlin, and Paris. He practised law from 1869 to 1879 and then bought the controlling interest in the Cincinnati *Times*, which was consolidated with the *Star* in 1880. In 1894 he was elected to Congress on the Republican ticket, and he served in that body until 1897. He was elector-at-large in 1904, and in 1908 he was a candidate for the Republican nomination for United States Senator from Ohio, but withdrew from the contest in December in the interest of party harmony. He is a half brother of W. H. Taft.

TAFT, WILLIAM HOWARD. Elected President of the United States in 1908. He was born in Cincinnati, Ohio, on Sept. 15, 1857, a son of

Alphonso Taft, who was Attorney-General of the United States in 1876-77. He attended the public schools of Cincinnati, and graduated at Yale in 1878, second in his class of one hundred and twenty-one members, and salutatorian at the commencement exercises. Two years later he graduated at the Cincinnati Law School, and in the same year (1880) was admitted to the Ohio bar. During the next year he was law reporter for the Cincinnati *Times*, and then for the Cincinnati *Commercial*. He entered public life as assistant prosecuting attorney for Hamilton County, Ohio, in 1881, and with the exception of the period 1883-87, when he practised law in Cincinnati, has since remained in it, with steadily increasing responsibilities. He was collector of internal revenue for the first district of Ohio, in 1882-83; county solicitor of Hamilton County, in 1885-87; judge of the Superior Court of Ohio, in 1887-90; solicitor-general of the United States in 1890-92; dean and professor of the law department of the University of Cincinnati, in 1896-1900; United States circuit judge of the Sixth Circuit, in 1892-1900; president of the Philippine Commission from March 13, 1900, to Feb. 1, 1904; first civil governor of the Philippine Islands from July 4, 1901, to Feb. 1, 1904; and Secretary of War from the last-named date until June 19, 1908. Incidentally, he visited Rome, in June, 1902, and conferred with Pope Leo XIII. in the matter of the purchase by the United States of certain agricultural lands belonging to Roman Catholic orders in the Philippines; in September, 1906, was sent by President Roosevelt to Cuba to restore order; in March and April, 1907, visited Panama, Cuba, and Porto Rico; and in May-December of the latter year made a tour around the world by way of Shanghai, Manila, Moscow, St. Petersburg, and Berlin.

During this long and varied career Mr. Taft's most valuable services to his country have, doubtless, been those rendered while he was president of the Philippine Commission, and civil governor of the Philippine Islands. He had been opposed to the taking of the islands by the United States because, he said, it involved "the assumption of a burden by us quite contrary to our traditions and at a time when we had quite enough to do at home." The task he confronted there was an exceedingly difficult one. The insurrection was well under control (though Aguinaldo was not captured until March, 1901), and Mr. Taft began almost at once to enforce his policy of "the Philippines for the Filipinos." This involved the replacement of the old church-state régime, antiquated, inefficient, and corrupt, by an intelligent and honest system of government, in keeping with American political institutions, and incidentally the substitution, as rapidly as possible, of civil for military authority, a process which caused much dissatisfaction among the soldiers. Another delicate matter, requiring both diplomacy and firmness, was the acquisition of the lands of the friars, who had been driven out of the islands during the war, but whose title to their property was recognized by the United States. Mr. Taft's plan was to buy all of this property from the religious orders concerned, and sell it back to natives who would become occupants of it. His visit to Rome and his interview with the Pope resulted in the adoption of his plan for effecting this transfer. The Pope sent a special delegate to the Philippines to appraise the lands, and in December, 1903,



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WILLIAM H. TAFT
SECRETARY OF WAR AND ELECTED PRESIDENT OF THE UNITED STATES, 1908

the negotiations were ended by the payment of \$7,239,000 for them. Under Mr. Taft's governorship the condition of the islands steadily improved. Mr. Taft visited the Philippines again in October, 1907, and on the 16th of that month opened the first session the National Legislature at Manila. During the journey around the world (above referred to), Mr. Taft had a private audience with the Emperor of Japan (Oct. 2), and while in Tokio delivered an address in which he spoke with great earnestness of the friendly feeling of the American government for the Japanese, an expression which did much to allay the irritation in Japan over the treatment the natives of that country had been receiving on the Pacific Coast. At St. Petersburg, on Dec. 3, he also spoke effectively on the subject of world peace. Mr. Taft again showed his tact, patience, and firmness in dealing with the situation arising from the failure of the Cuban government in 1906. He arranged for the occupation of the island by United States troops until order had been restored and a provisional government reestablished, which was accomplished under Charles E. Magoon.

On the bench, Judge Taft frequently showed both ability and courage in high degrees, the latter quality being especially evidenced during the great railway strike of 1894. In sentencing Pnelan, the labor leader who was fomenting the strike in Cincinnati, to six months in jail for violating the injunction which sought to restrain his activities, Judge Taft pronounced the dictum that "the starvation of a nation cannot be a lawful purpose of a combination," and then in the face of the ugly attitude toward him of some of the labor leaders, virtually threatened to use the United States troops, if necessary, to run the trains. In this connection may be noted President Roosevelt's desire to appoint Mr. Taft to the bench of the United States Supreme Court, in 1902, a position it had always been his ambition to hold, and which he declined solely because he believed it to be his duty to stay in the Philippines. It is also interesting to note that in 1899 certain members of the Corporation of Yale were very anxious to have Mr. Taft permit his name to be considered for the presidency of that university, and that he declined because he considered himself "necessarily lacking in the wide culture, breadth of learning, and technical preparation in the science of education which are needed to discharge the duties" of such a position. (See PRESIDENTIAL CAMPAIGN.)

Mr. Taft's election to the presidency, while of course expected, was received with general approval by the country at large, irrespective of party, and especially by the conservative interests. His judicial training, his long and successful experience as an administrative official, and his demonstrated ability to deal with many difficult situations with diplomacy and tact was such that he was universally conceded to be in a position to take up the work of the presidency with qualifications and experience that had been the fortune of few, if any, former occupants of this office. At the close of the year the coming administration was anticipated as one that would largely eliminate the unfortunate friction that in many instances had characterized President Roosevelt's second term. It was believed that Mr. Taft's calm and judicial mind would make no less for efficiency in the operations of the government than for the restoration of normal conditions throughout the country, and gen-

eral prosperity in so far as it could be brought about by the conservative influence of the Chief Executive.

TALL BUILDINGS. The tower of the Metropolitan Life Insurance Company's building at 24th street and Madison avenue, New York city, which, next to the Eiffel Tower in Paris, was the tallest building in the world in 1908, had 37 feet added to its originally planned height, thus giving it a total number of stories, including the two in the basement, of fifty, and an elevation above the pavement to the top of the glass ball, of 693 feet. The extra elevation was gained in the octagonal tower which was designed to contain a powerful electric lantern, while an observation balcony was located 862 feet above the sidewalk. Work on the exterior was almost completed at the end of the year, the great clock and a few minor details of the tower alone needing attention, while portions of the interior already were in use for office purposes. The tallest office building in the world was announced for possible erection upon the site occupied by the Mills building at Broad street and Exchange place, New York city. This would exceed the height of both the 909-foot structure proposed during the year for the Equitable Life Insurance Society, and the Eiffel Tower, and with its height of 1,000 feet would make the Metropolitan and Singer buildings look small in comparison. The architect for the design, it was stated, would be Mr. Ernest Flagg, who designed the 612-foot tower of the Singer building, completed in 1907.

TARIFF. UNITED STATES. During several years there has been an increasing demand for tariff revision. This demand became an important political factor when it was taken up by various manufacturers throughout the country. In the first week in February a delegation of business men called upon the President and the Speaker to demand revision. They asked for a more scientifically constructed system, one more in accord with actual industrial conditions. This delegation was composed of Republican protectionists. At the same time there was before Congress a bill drawn by Senator Beveridge providing for a non-partisan tariff commission. Taft, Hughes, Bryan, and other political leaders declared in favor of revision. The Republicans in Congress forestalled the Democrats, so far as making an effective campaign issue out of the subject was concerned, by declaring in favor of "revision of the tariff by its friends," and by authorizing the appropriate committees of the Senate and House to make investigations during the summer and fall, preparatory to legislation. Numerous State political conventions in May and June declared in favor of revision. At their national conventions both parties pledged themselves to revision. See PRESIDENTIAL CAMPAIGN.

The hearings held in November by the House Committee on Ways and Means attracted wide attention. Most of the evidence presented was given by manufacturers and others directly interested. Consumers were urged to attend, but it was pointed out that consumers are unorganized and singly would have no influence. It was urged that such persons could not be expected to spend time and money in a futile trip to Washington. Mr. Charles Francis Adams of Boston made these points very clear. In a much-discussed letter he divided those directly and fi-

nancially interested in the tariff as "either thieves or hogs." Though he classed himself with the former, saying that the tariff gave him a license to steal and forced him to use it in order to prosecute his business, he expressed his desire that the tariff schedules be so reduced as to take away all special favors. The testimony of Mr. Andrew Carnegie and of Judge E. H. Gary of the United States Steel Corporation excited keen interest. Mr. Carnegie declared that the steel industry in this country needs no protection, citing as proof the fact that the trust last year made a profit of more than \$15 per ton on its output. In the December *Century* Mr. Carnegie gave further damaging testimony on the need of protection in the steel industry. Chairman Gary admitted that his corporation could compete with the world, but stated that smaller concerns would probably be forced out of business by hasty reductions of rates. Following repeated insistence by Mr. Taft that there should be an honest revision or none, the Payne committee hearings became less perfunctory and less hasty than they were at first. Especially was more time and attention given to those favoring revision. The subject of "dumping" was considered. It was shown that manufacturers seeking increased protection were selling abroad at 40 per cent less than at home; and that they were besides paying the cost of transporting goods to Europe and Australia. It was made clear that the high tariff wall, making the large American market inaccessible to foreign competitors, facilitated combination and trust formation with consequent monopoly within the protected territory.

The newspapers made a vigorous and concerted attack on the tariff on wood pulp, claiming that this schedule enabled a monopoly to control the supply of news-print paper. This demand for free wood pulp was seconded by a plank in the Democratic platform. It was also instrumental in furthering inquiry by the Bureau of Corporations into the position of the paper trust.

A maximum and minimum tariff was proposed in the Republican platform, the object being to make possible retaliation upon any country discriminating against American goods. Maximum rates could be enforced against goods from such a country. This proposal was due mainly to the narrowly averted tariff war with Germany in 1907. The new German tariff of 1906 made extensive provisions for reciprocity, but the United States Senate did not show favor for such an arrangement. Trade war was only averted by an agreement between Secretary of State Root and Baron Sternburg, the German Ambassador, granting Germany "most favored nation" terms. Moreover, various concessions were granted to the Germans regarding invoicing and the recall of any American trade agents who become obnoxious to German manufacturers. These agents are maintained abroad to ascertain the cost of producing goods so as to prevent undervaluation when imported. France was stirred by these concessions and, entrenched behind a high tariff, began to threaten higher rates on American goods. At the instance of the State Department similar concessions were granted to France, and in Feb., 1908, a very limited reciprocity agreement was made. This favored mineral oils (petroleum) from the United States, coffee and cocoa from Porto Rico,

and champagne from France. Moreover, a tariff commission was sent to France (1) to investigate the grounds of discontent with present tariff methods, and to report how these may be removed; (2) to analyze conditions so as to show the correct basis for a reciprocity treaty; and (3) to inquire particularly into regulations governing the importation of French canned goods and medicinal preparations and the exportation to France of canned and dressed meats. The Pure Food and Drugs act has caused considerable friction with French trade.

ENGLAND. In England the subject of an alliance of the various parts of the British Empire, especially Great Britain and Ireland with Canada and Australasia, by means of preferential tariff rates received continued discussion. Since the Colonial Conference of 1907, however, the Chamberlain scheme for preferential rates has had less and less likelihood of realization. That conference showed that, although the colonies might do their part by lowering established rates on English goods, Great Britain could reciprocate only by abandoning her free-trade policy in imposing import duties on all goods except those from her colonies. The subject is kept before the public by the investigations of the tariff commission. This commission was appointed after the pronouncement by Mr. Joseph Chamberlain in 1902 in favor of a policy of protection with colonial preference. It has appointed committees to investigate specified industries, composed in each case of persons familiar with and interested in the industry investigated. These committees hold hearings at which manufacturers and dealers give testimony without cross-examination. Thus far reports have been submitted on the iron and steel, all the textile, the sugar, pottery, and glass industries, and agriculture. The reports have been uniformly favorable to the Chamberlain proposal, but opponents charge that, owing to the composition of the committees and their manner of holding hearings, the results do not represent an unprejudiced judgment. A complete and final report is yet expected from the commission.

FREE-TRADE CONGRESS. In Aug., 1906, there was held at London a Free-Trade Congress, to which delegates from all industrial nations were invited. Papers were read bearing on the advantages of a policy of unrestricted trade and the disadvantages of protective tariff systems as they are now constructed. The American and German delegates emphasized the responsibility of tariffs for the growth of trusts and cartels, because the existence of a protected zone makes combination within that zone especially advantageous. Delegates from the United States, Canada, Germany, France, and Italy all spoke of the influence of a tariff in bringing about a combination between leading industrial interests and powerful political forces, with disastrous effects on the honesty and integrity of political life.

CANADA. There was a strong demand on the part of manufacturers for protection against goods from the United States, and an almost equally eager demand on the part of farmers and some others for a preferential tariff arrangement with Great Britain favorable to Canadian grain and food products. Thus the Conservatives, who have stood for a pronounced high tariff policy and against preference for Great Britain, made gains in industrial centres

in 1908, but endured equal losses in rural sections.

AUSTRALIA. The "New Protection" inaugurated in Australia in 1907 aims to give protection to manufacturers, to safeguard the interests of consumers, and at the same time compel the manufacturers to share benefits with wage-earners. It is provided that an internal tax, equal to one-half the import duty and administered by an "Excise Tariff Court," shall be imposed on protected goods of home manufacture; but any manufacturer paying fair and reasonable wages may be exempted from such internal tax. The Excise Tariff Court has very extensive powers in gathering information to determine whether any manufacturer is paying such wages as entitle him to exemption. This law is operated in connection with the trademark law which provides that any manufacturer fulfilling legal requirements as to wages and conditions of labor shall be allowed to affix a Commonwealth trade-mark to his goods. The interests of consumers are guarded by a provision that, if prices shall be raised by a combination of workmen and employer in any industry, import duties shall be lowered. The new laws also provide preferential rates on English goods but not to such an extent as to secure much advantage to English manufacturers. In fact the new import duties are enough higher than previous ones to place English goods at a greater disadvantage than previously, in spite of the preference.

Early in the year an extremely important decision was rendered by Justice Higgins, sitting as the Court of Conciliation and Arbitration. In this he sustained as legal that section of the new laws requiring the payment of fair and reasonable wages as a prerequisite for exemption from the internal excise tax. The immediate effect was to force manufacturers into line on the wages question. The case was, however, appealed to the High Court, which, in August, reversed the decision by a vote of three to two. The majority opinion was that the section in question was not a taxing act, but an act to regulate wages and therefore unconstitutional. Both members of the government and labor leaders declared that some means of accomplishing the desired end, that is, of securing for workingmen a share of the benefits of protection, would be found. Even a constitutional amendment was said to be within the range of possible expedients.

TASMANIA. An island State of Australia. Area, 26,215 square miles; population at the end of 1907, 181,624. Hobart, the capital, had an estimated population of 35,685 on the same date. For details regarding population, education, production, etc., see **AUSTRALIA**. The executive power is vested in a governor appointed by the crown and acting through a responsible ministry. The Parliament consists of a Legislative Council of 18 members, elected for six years upon the basis of property franchise; and a House of Assembly of 35 members, elected for three years by universal suffrage. Women have the franchise for both houses. The governor in 1908 was Sir Gerald Strickland. The premier was J. W. Evans.

TATSU MARU AFFAIR. See **CHINA**.

TEA. Of the 94 million pounds of tea imported into the United States in 1908, it was estimated that practically all of it was pro-

duced in the Orient, though 9½ million pounds came from the United Kingdom, presumably the product of her Asiatic possessions, chiefly India and Ceylon; 2½ million pounds entered from British North America, the product of the Orient, reaching Canadian soil either across the Pacific or by way of Europe and the Atlantic; 47 million pounds came direct from Japan to the United States; 27¼ millions from China, and 7¼ millions from the East Indies. The United States stands third in the rank of consumers of tea imported; the quantity of tea imported into the United Kingdom in 1906 being, estimated by competent authority, at 270 million pounds; Russia, 136 millions; United States, 86 millions; Australia, 29 millions; and Canada, 26 million pounds. The United Kingdom, it will be seen, is therefore by far the largest importer of tea—its colonies, Australia and Canada, being also large importers in proportion to population. In tea the per capita consumption of the United States has somewhat reduced meantime, that of 1878 having been 1.33 pounds per capita; 1888, 1.4 pounds; 1899, 0.04 of 1 pound; and in 1908, 1.07 pounds per capita. See **CEYLON**; **CHINA**; **INDIA**.

TELEGRAPHY. The most important event of the year in the realm of telegraphy was the meeting of the quinquennial International Telegraph Conference, held in Lisbon in May, 1908. Certain alterations were made in the service regulations which govern international communication by telegraphic and telephonic means, and certain new regulations adopted relating to wireless telegraphy. In England there was considerable agitation during the year for a reduction in telegraph and cable rates. During the year plans were completed for two new transatlantic cables, one from Ireland to Nova Scotia, and the other from Germany to Brazil. The former cable was to be installed by the British and Canadian governments, and it was stated that the rate to the public will be only 10 cents a word instead of the present rate of 25 cents. On the physical side, development in telegraphy, other than wireless, has been largely in the perfecting of multiplex printing telegraphs. Such machines are now in use in a number of the larger cities, particularly in Europe. A new use for telegraph lines that first took on a commercial aspect in 1907 was for the telegraphic transmission of photographs and drawings. A number of new devices for this purpose were tested out in 1908, and Knudsen claimed that he had devised a method of operating linotype composing machines by an adaptation of his photo-telegraphic apparatus.

TELEGRAPHY, WIRELESS. See **WIRELESS TELEGRAPHY**.

TELEPHONY. During the year 1908 numerous changes were made in the organization of many of the companies in the United States. In a number of cases individual companies were merged for reasons of economy and efficiency. The formation of a company to handle long distance calls over the lines of the independent companies in this country was also decided on. The Bell toll line system completed its Denver extension during the year. A new underground toll line was completed between Chicago and Milwaukee, the cable being "loaded" with Pupin coils. Automatic and semi-automatic telephone exchanges more than held their own. A field in which the telephone is steadily gaining in

popularity is for train dispatching; during the year several large installations for this purpose were reported.

TELEPHONY, WIRELESS. See **WIRELESS TELEPHONY.**

TENNESSEE. One of the South Central States of the American union. Its area is 43,022 square miles. The population in 1908 was estimated at 2,223,094.

MINERAL RESOURCES. Considerable gains have been made in recent years in the mineral production of the State. These products aggregated in value in 1907 \$26,525,004, as compared with \$27,444,570 in 1906. The coal production in 1907 was 6,810,243 short tons, with a spot value of \$8,490,334. The generally increased production in 1907 was shared by Tennessee, but to a less extent than by many other Eastern States. Coal mining is confined to the eastern portion of the State, which is crossed by the Appalachian system, and mining operations are carried on under the handicap of having their markets in common and accordingly competitive with the coals from Alabama and southern Kentucky. The production of 1907 was an increase of 550,968 short tons in quantity over the output of 1906, with a gain of \$822,919 in the value of the output. This was the maximum production recorded in the coal mining history of the State. In 1907 12,052 men worked in the coal mines of the State. Of the coal mined, 874,925 tons were produced by the use of 137 machines. The United States Geological Survey estimates the original contents of the mining fields of Tennessee at 25,665,000,000 short tons, of which the exhaustion to the beginning of 1908 represented little less than one-half of one per cent. The coke-making industry has remained nearly stationary in the last three years, the production in 1907 having amounted to 467,499 short tons, as compared with 483,428 tons in 1906 and 468,092 tons in 1905. The value of the product, however, increased from \$1,184,442 in 1905 to \$1,350,856 in 1906 and \$1,519,225 in 1907. There were 18 coke-making establishments in the State at the beginning of 1908. The copper production for 1907 amounted to 18,893,115 pounds, as compared with 17,979,317 pounds in 1906. The value of the production of 1907 was \$3,778,623 as compared with a value for the product of 1906 of \$3,470,008. This production was entirely from the Ducktown district in Pulp county. There were produced in 1907 218,643 pounds of zinc, valued at \$12,900. There were produced in 1907 813,690 long tons of iron ore, as compared with 870,734 long tons in 1906. Tennessee ranks eighth among the States in the production of iron ore. The pig iron produced in 1907 was 393,106 long tons, as against a product of 426,874 long tons in 1906. The clay products of the State were valued in 1907 at \$1,613,862, as compared with a value for the same product of 1906 of \$1,620,226. The production of phosphate rock in 1907 was 638,612 tons, as compared with 547,677 tons in 1906. Other mineral products of the State are building-stone, lime, sand and gravel, mineral waters, and silver, also unclassified, mineral paints, natural gas and sand-lime brick. The production of coal in the State in 1908 probably fell off between 15 and 18 per cent., as compared with 1907. This decrease would probably have been greater, except for the long strike in

Alabama, which benefited the industry in Tennessee.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 83,080,000 bushels, valued at \$53,171,000, from 3,350,000 acres; winter wheat, 8,198,000 bushels, valued at \$8,108,000 from 819,000 acres; oats, 3,675,000 bushels, valued at \$1,948,000 from 175,000 acres; barley, 25,000 bushels, valued at \$18,000 from 1,000 acres; rye, 100,000 bushels, valued at \$90,000 from 8,000 acres; buckwheat, 15,000 bushels, valued at \$12,000 from 1,000 acres; potatoes, 2,240,000 bushels, valued at \$1,590,000 from 28,000 acres; hay, 600,000 tons, valued at \$7,080,000 from 400,000 acres; tobacco, 52,000,000 pounds, valued at \$4,680,000 from 65,000 acres. The cotton crop of 1908 is estimated at 340,000 bales, which was a slight increase over the crop of 1907, which was 304,054 bales. The number of farm animals on Jan. 1, 1909, were as follows: Horses, 324,000; mules, 287,000; dairy cows, 334,000; other cattle, 595,000; sheep, 351,000; swine, 1,487,000. The wool clip for 1908 was 1,305,000 pounds, valued at \$352,350.

MANUFACTURES. Very considerable progress was made in manufacturing between the censuses of 1900 and 1905. The latter reported 3,175 establishments classed as factories, employing \$102,439,400 capital and 60,572 wage-earners, and manufacturing products valued at \$137,960,400. These four items were respectively 1.9, 62.2, 31.8 and 48.7 per cent. larger than in 1900. Of the wage-earners in 1905, 6,611 were women and 2,204 were children under 16. The values of products of leading industries and (in parentheses) the percentage increases over 1900 were: Flour and grist mill products, \$25,350,700 (32.3); lumber and timber products, \$21,580,000 (29.2); foundry and machine shop products, \$6,946,500 (55); railway repair shops, \$5,839,400 (87.6); printing and publishing, \$5,063,500 (46.6); planing mills, \$4,586,900 (97.4); cotton seed products, \$3,743,900 (25.6); tanned and finished leather, \$3,585,800 (27.9); cotton goods, \$3,560,984 (78.5); and iron and steel, blast furnaces, \$3,428,000 (27).

EDUCATION. The legislature of 1907 passed an act of far-reaching importance in its influence for the betterment of the schools of Tennessee. Under the provisions of this act, the county is made the union of school organization instead of the school district, and the Board of Education, composed of five members in each county, takes the place of the three district directors for each district under the old district system of organization. This act provided that all the schools of the county shall run as nearly as practicable the same number of days and also makes the county superintendent ex-officio secretary of the County Board of Education. Under this act a great number of schools have been consolidated, and teachers' salaries and the length of term increased. It has been found by far the most economical method of school administration yet found in the State. The legislature of 1907 was more liberal in its appropriation for public education than any of its predecessors. It gave, in round numbers, to the educational institutions of the State, \$1,400,000. Up to Oct. 1, 1908, thirty-five counties had established high schools. There were

9,300 teachers employed with an annual expenditure of \$3,313,771. The school population of the State, which includes all persons between the ages of six and twenty-one years, was in 1908 766,625. Of this number, 495,729 were enrolled in school and 353,016 children were in attendance for 117 days. The average compensation of teachers per month was \$37.10.

POLITICS AND GOVERNMENT. The chief local political interest of the year centered about the Democrat primary elections on June 27. Governor Patterson was a candidate for renomination, while opposed to him was Edward W. Carmack, former United States Senator. The most important issue of the campaign preceding the election was the attitude of the State on the question of prohibition or local option. Governor Patterson was the candidate of those who considered the existing local option laws sufficient in the way of temperance regulations, while Mr. Carmack and those in sympathy with him stood on the platform of State-wide prohibition. The campaign was exceedingly stirring, and abounded in bitter personal and political attacks on both sides. Governor Patterson was renominated by a majority of 7,500. The feeling generated by this conflict was generally considered the moving cause in the killing of Mr. Carmack at Nashville on Nov. 9 (see below). On April 11, the Standard Oil Company was prohibited from carrying on business in the State (see **STANDARD OIL**).

CONVENTIONS AND ELECTIONS. Factional differences disorganized the Republican party of the State, and two distinct conventions were held for the selection of delegates to the National Convention, on March 25 and 26 respectively. The State Convention was called for the former date, but the opposing elements clashed. The faction controlled by H. Clay Evans withdrew from the convention hall, leaving the so-called Brownlow faction in control. This body endorsed President Roosevelt's administration, but did not instruct the delegates. Resolutions were adopted condemning the pernicious activity of Federal office-holders. The Evans faction at its convention, held on the day following, instructed the delegates chosen to vote for W. H. Taft for President and H. Clay Evans for Vice-President. The Democratic State Convention to choose delegates to the National Convention met on June 14 at Nashville. The delegates were instructed to vote for W. J. Bryan for President. The factional quarrel between the Brownlow and Evans factions of the Republican party resulted again in two separate conventions for the nomination of State officers. The Evans faction on Aug. 12 nominated G. M. Tillman for governor. Both conventions adopted resolutions in favor of State-wide prohibition. In the election of Nov. 3 the Democratic party had a plurality in the State of about 17,000 and the entire Democratic ticket was elected. The total vote for National and State tickets was as follows: Bryan, 135,819; Taft, 118,519; Chafin, 268; Debs, 1,882; Patterson, 133,913; Tillman, 113,033.

OTHER EVENTS. The year was a troubled one in the history of the State from the aggressions of the "night riders," who were responsible for several remarkable atrocities. While certain of these disorders were the result of the conflict between the tobacco growers and those who sought to control its output, the most notable outrage had nothing to do with the to-

bacco war, but had its sources in other causes. On Jan. 22, an attempt was made to dynamite the tobacco factory of the Hayes-Sorey Tobacco Company at Clarksville. Two negroes were killed while trying to escape. The attempt was unsuccessful. At the same place on March 10, Brown Bennett, son of an association tobacco appraiser, was killed by shooting. It is believed that the young man was a "night rider" and was shot down by parties whom he and his gang had attacked. On Oct. 20, thirty or more masked and armed "night riders" kidnapped from a hotel in the village of Walnut Log on Reelfoot Lake Captain Quentin Rankin and his law partner, R. Z. Taylor, together with a surveyor and a guide. Captain Rankin's body was found hanging to a limb of a tree on the shores of Reelfoot Lake, filled with bullets and buckshot. It was feared that Col. Taylor, too, had been killed, but he escaped from his captors and reached the village of Trenton in safety on Oct. 22. The cause of this trouble dates back to 1906, when Judge Taylor and Captain Rankin, acting for a syndicate, began buying up all the land bordering Reelfoot Lake, which is a large body of water many miles in extent, well known for its good fishing. The closing of this lake to local fishermen caused bitter feeling among the inhabitants, who had relied to a large extent upon the money obtained from visiting sportsmen for their livelihood. Many threats had been made to harm the projectors of this enterprise to secure the lake, but they had been disregarded. Armed posses were at once organized as soon as the crime had been discovered, and Governor Patterson offered \$10,000 for the arrest and conviction of one or more of those who had taken part in the lynching of Captain Rankin. Two companies of militia were at once ordered from Nashville to the scene and the locality was placed under martial law. On Oct. 23, three men were arrested by the State troops for connection with the murder of Captain Rankin, and on Oct. 25, fifty-one more persons were taken in charge by the troops. On Oct. 28, twenty-one more were arrested. A court of inquiry was established at Union City and many witnesses were examined. Attorneys for certain of those under arrest applied for writs of habeas corpus and on Oct. 7 Judge Jones decided in favor of the State, denying the application of the prisoners for release from the custody of the military authorities. These cases involved the governor's right to call out the militia. At the trial held in the latter part of December, members of the band of "night riders" confessed to many outrages which had been perpetrated by these bodies. The case had not been decided at the close of the year.

Disturbances arose on Aug. 18 at a mining camp near Jellico between negroes and white miners, which resulted in the driving of all the negroes from the camp. This action arose from alleged disturbances created by the negroes which were objected to by the white miners. It was reported that a cabin in the camp was burned and 6 negroes cremated.

On Nov. 9, Edward Ward Carmack, former United States Senator, and editor of the *Tennessean*, was shot and killed by Robin Cooper, son of Col. Duncan B. Cooper, of Nashville. Mr. Carmack and Col. Cooper had been bitter political opponents and during the political campaign,

and afterward, great enmity had arisen between them, chiefly, it was said, on account of editorials in Mr. Carmack's newspaper. Robin Cooper and Col. Cooper were both arrested, together with John D. Sharpe, former sheriff of Nashville, who was charged with aiding and abetting the murder of Senator Carmack. Both Col. Cooper and Mr. Sharpe are among the best known politicians in the State. Both were prominently identified with the campaign which resulted in the reelection of Governor Patterson.

On April 26 great damage was done in Memphis by wind and rain. Street cars were blown from the track and smoke stacks and walls were blown down. The United States Senate on March 2 appropriated \$25,000 for the care of the Hermitage, the homestead of President Andrew Jackson.

STATE OFFICERS. Governor, Malcolm R. Patterson, Dem.; Secretary of State, John W. Morton; Treasurer, R. E. Folk; Commissioner of Agriculture, John Thompson; Superintendent of Public Instruction, R. E. Jones; Comptroller, Frank Dibrell; Adjutant-General, Tully Brown; Attorney-General, Chas. T. Cates—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, W. D. Beard; Justices, John S. Wilkes, W. K. McAllister, M. M. Neil, and John K. Shields; Clerk, Joe J. Roach—all Democrats.

The State legislature of 1909 is composed of 27 Democrats and 6 Republicans in the Senate, 78 Democrats and 21 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

TETANUS. Cases of tetanus arising from Fourth of July injuries are collected yearly by the *Journal of the American Medical Association*. In 1908 there were 76 cases reported. The most common cause of the wound was the blank cartridge. Following the injury it required an average of 8 days for symptoms of tetanus to appear—the incubation period. After the appearance of symptoms death occurred in the fatal cases in from 16 hours to 3 days, the average being about 36 hours. Out of the total of 76 cases, 55, or 72 per cent., ended fatally, as against 85 per cent. in 1907 and 84 per cent. in 1906. It is pointed out that tetanus more often developed in supposedly insignificant wounds, as these were neglected, while extensive lacerated injuries were treated by physicians. Besides the cases of lockjaw directly due to celebration of the Fourth of July, there were 166 cases of tetanus reported during this season. As a result of the publicity given to injuries from fireworks (163 deaths and 5,460 non-fatal injuries occurred in 1908), attempts were made in many places to lessen this annual sacrifice. Restrictions as to the character of fireworks, shortening the time of celebration, or even absolute prohibition were adopted in certain cities. In St. Paul, Detroit, and other cities efforts were made to substitute a different form of celebration for fireworks. In the former place a mammoth children's meeting was held at the Auditorium, with bands, flags and bunting, confetti, etc., for amusing the children.

TETRAZZINI, LUISA. An Italian lyric soprano. She was born in Florence, in 1874, and made her operatic debut in Rome, after only

three months' regular study at the Florence conservatory. She then went to South America, where she remained four seasons. Subsequently she appeared in Madrid, in Russia (seven consecutive seasons), Cuba, Mexico City, San Francisco, Paris, and London. On Jan. 15, 1908, she made her first appearance at the Manhattan Opera House, New York City, singing "Violetta" in Verdi's *La Traviata*. She was reengaged at the Manhattan for the season of 1908-1909. Her voice is flexible, pure in tone, and of extraordinary range.

TEXAS. One of the South Central States of the American Union. It is the largest State in the Union and has an area of 265,896 square miles, of which only 3,498 square miles consist of water surface. The population, according to a Federal estimate made in 1908, was 3,699,255.

MINERAL RESOURCES. The petroleum production of Texas suffered a slight decrease in 1907 from the amount produced in 1906. The figures for the former year were 12,322,696 barrels, as compared with 12,567,897 barrels in 1906. The decline was most noticeable in the Humble, Batson, and Hoskins mounds. Texas ranks fourth among the States in the production of petroleum, being surpassed only by the Oklahoma-Kansas field, California, and Illinois. The value of the production in 1907 was \$10,401,863 as compared with a value of \$6,565,578 for the product of 1906. The decrease in the production of petroleum in Texas since 1905 has given an additional impetus to coal mining in the State. The amount produced in 1907 was 1,648,069 short tons, with a spot value of \$2,778,811. The production in 1906 was 1,312,873 short tons, valued at \$2,178,901. The larger proportion of the increase in the production of coal in the State in 1907 was from the lignite producing areas, the output of lignite having increased from 472,888 short tons in 1906 to 787,732 short tons in 1907. The production of bituminous coal increased from 829,935 short tons in 1906 to 940,377 tons in 1907. The coal mines of the State gave employment in 1907 to a total of 4,227 men. The United States Geological Survey estimates the original supply of bituminous coal in Texas at 8,000,000,000 short tons and of lignite at 23,000,000,000 tons, making a total of 31,000,000,000 tons as the original supply. From this there had been produced to the beginning of 1908 a total of 14,444,948 short tons. The clay products of the State were valued in 1907 at \$2,557,561, a substantial increase over the value of the output in 1906, which was \$1,969,598. The stone products of the State were valued in 1907 at \$497,962, as compared with a value of the product in 1906 of \$518,719. Of this product, limestone made up the greater part. The output of quicksilver in the State in 1907 was 3,686 flasks of 75 pounds each, valued at \$148,387, as compared with an output in 1906 of 4,761 flasks. Lime was produced in 1907 to the amount of 38,101 short tons, valued at \$186,372. Among other mineral products of the State are coal products, asphalt, silver, salt, sand and gravel, mineral waters, also unclassified, cement, copper, gypsum, iron ores, pig iron, lead, natural gas, and sand-lime brick. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907

was \$19,806,458, as compared with a value of \$14,751,037 in 1906. Estimates indicated that the production of bituminous coal in the State for 1908 would be about the same as the production in 1907. The production of lignite will probably show a decrease of 20 per cent. about one-half of which is due to the effects of the panic and one-half to the competition of fuel oil.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in 1908 were as follows, according to figures of the United States Department of Agriculture: Corn, 201,848,000 bushels, valued at \$119,090,000 from 7,854,000 acres; winter wheat, 10,164,000 bushels, valued at \$9,961,000 from 924,000 acres; oats, 21,675,000 bushels, valued at \$11,271,000 from 750,000 acres; barley, 96,000 bushels, valued at \$75,000 from 4,000 acres; rye, 62,000 bushels, valued at \$61,000 from 4,000 acres; rice, 9,142,500 bushels, valued at \$7,588,275 from 265,000 acres; potatoes, 3,550,000 bushels, valued at \$3,479,000 from 50,000 acres; hay, 1,072,000 tons, valued at \$8,844,000 from 650,000 acres; tobacco, 2,400,000 pounds, valued at \$600,000 from 3,000 acres. The corn crop of 1908 showed a considerable increase over that of 1907, which was 155,589,000 bushels. In the production of rice, the State ranks second, being surpassed only by Louisiana. The rice crop of 1908 was practically the same as that of the previous year, with a slightly decreased acreage. The cotton crop of 1908 was estimated at 3,917,000 bales. The State has long ranked first in the production of cotton. The production in 1908-09 showed a marked increase over that of 1907-08, which was 2,490,000 bales. The farm animals on Jan. 1, 1909, were estimated by thousands as follows: Horses, 1,342,000; mules, 688,000; dairy cows, 1,126,000; other cattle, 7,668,000; sheep, 1,853,000; swine, 3,304,000. The wool clipped in 1908 was estimated at 8,775,000 pounds, valued at \$1,534,748.

MANUFACTURES. Very rapid progress has been made since 1900 in manufacturing. The special census of 1905, covering only establishments classed as factories, reported 3,158 such establishments, with \$115,664,800 capital, 49,066 wage-earners, and products valued at \$150,528,300. These four items showed increases over their values in 1900 of 1.6, 81.7, 27, and 62 per cent. respectively. Of the wage-earners in 1905, only 2,479 were women and only 821 were children under 16. Following is the value of products of leading industries in 1905 and (in parentheses) the per cent. of increase over 1900: Flour and grist mill products, \$22,083,000 (84.8); cottonseed products, \$18,698,800 (33.5); lumber and timber products, \$16,278,200 (63.7); slaughtering and meat packing, \$15,620,900 (300); railway repair shops, \$10,472,700 (26); printing and publishing, \$7,782,000 (70); foundry and machine shop products, \$4,952,800 (84.6); cleaning and polishing rice, \$4,640,000 (value in 1900, \$12,000); malt liquors, \$4,153,900 (54.4); and saddlery and harness, \$3,251,500 (24). Texas held first place in the manufacture of cottonseed oil and cake in both 1900 and 1905. Other important industries are petroleum refining, and lead smelting and refining. The values produced by leading centres in 1905 were: Dallas, \$15,627,600; Houston, \$13,564,000; San Antonio, \$7,402,000; Fort Worth, \$5,668,300; Galveston, \$2,996,600; and Waco, \$2,979,800.

FINANCE. The report of the State treasurer showed a balance on Sept. 1, 1907, of \$1,403,974. The receipts for the year following, ending Aug. 31, 1908, were \$10,741,035.03. The disbursements amounted to \$10,743,211.45, leaving a cash balance on hand Sept. 1, 1908, of \$1,401,798.10. There were on hand Sept. 1, 1908, bonds to the value of \$16,387,392.03. These bonds are held by various school funds, of which the permanent school funds form the greater part, \$15,136,807.53. The State bonded debt is \$3,989,400, which is nearly all owned by school funds. There is no sinking fund.

CHARITIES AND CORRECTIONS. Among the charitable and correctional institutions of the State are the North Texas Hospital for the Insane at Terrell; the Texas Deaf and Dumb Asylum at Austin; the State Orphans' Home at Corsicana; the State Lunatic Asylum at Austin; the Institute for the Deaf, Dumb, and Blind colored youths of Texas; School for the Blind at Austin; Texas State Penitentiaries; the Southwestern Insane Asylum at San Antonio; and the State Epileptic Colony at Abilene.

POLITICS AND GOVERNMENT. The year 1908 was a stirring one in the local political history of the State. Agitation was begun early in the year for State-wide prohibition, and the proposition to submit a prohibition amendment to the people was the chief issue of the Democratic primaries held on June 25, and was carried by a margin of only 5,000 votes. The opponents of the measure declared, however, that the proposition was defeated because it did not receive a majority of all the votes cast. Thousands of voters did not vote at all on the proposition. In order to settle the matter beyond question, the Democratic State Convention adopted a resolution instructing the legislature to submit to a vote of the people at a future election a constitutional amendment providing for State-wide prohibition. As the legislature of 1909 will be overwhelmingly Democratic, such action is practically assured. The conflict between the State and the Waters-Pierce Oil Company carried on in 1907, continued in 1908. H. Clay Pierce, president of the company, was indicted in Feb., 1907, for false swearing, in testifying that the Waters-Pierce Company was not connected with any other company, when, it was alleged, he knew that it had entered into an agreement with the Standard Oil Company to control prices in Texas, and that the latter company had a controlling interest in the Waters-Pierce. Mr. Pierce was arrested in May, but resisted extradition and appealed to the Federal courts. This appeal finally reached the United States Supreme Court, which, on Jan. 1, 1908, decided that Mr. Pierce must return to Texas for trial. On Feb. 26 the State Supreme Court decided that the Waters-Pierce Company must pay \$1,623,000 penalties and retire from business in the State. The company appealed to the United States Supreme Court. See STANDARD OIL.

CONVENTIONS AND ELECTIONS. The chief interest of the Democratic primary elections held on May 2 to elect delegates at large to the Democratic National Convention, centred about the candidacy of Senator J. W. Bailey for head of the delegation. Senator Bailey was charged in 1907 with having had improper relations with the Standard Oil Company and other corporations. He was acquitted of these charges at a legislative investigation, but there remained

a strong sentiment against him in the State, and his election or defeat was looked upon as a test of the confidence which the voters of the State had in him. After a very spirited campaign, Senator Bailey was elected delegate at large by a majority of 17,927 in a total vote of 214,532. At the Democratic State Convention, held on May 27, the delegates chosen for the National Convention were instructed to vote for W. J. Bryan. At the Republican State Convention, held on May 15 at Dallas, instructions were given for W. H. Taft. The results of the Democratic primary election held on June 25, as regards the prohibition amendment, are given in the paragraph above. State officers were also nominated at this time, and Governor Campbell was nominated for reelection over R. R. Williams. The Democratic State Convention for the nomination of a State ticket was held on Aug. 10. In accordance with the results of the State primary held on June 25, Governor Campbell was renominated. The chief interest was the disposition of the amendment for State prohibition, and the result is indicated in the preceding paragraph. The Republican State Convention also met on Aug. 10. John N. Simpson was nominated for governor. In the election of Nov. 3, the Democratic party carried the State, as always, by a large majority. The entire Democratic State ticket was, of course, elected. The total vote for National and State tickets was as follows: Bryan, 216,737; Taft, 65,602; Debs, 4,895; Chafin, 1,634; Campbell, 206,198; Simpson, 70,850. At an election held at Dallas on April 8, three women were elected to important city offices.

OTHER EVENTS. On Feb. 26, the International and Great Northern System of Texas was put in the hands of a receiver. It was claimed by the officials of the road that this action was forced by the ordering of \$2,000,000 spent in betterments by the State Railroad Commission. The receiver was appointed by the Federal Courts. (See RAILWAYS.) An important decision affecting the railroads of the State was handed down by the United States Supreme Court on May 18. The court declared the rate law of 1905 fixing the tax rate on railroads equal to 1 per cent. on their gross earnings when wholly within the State, and a proportionate sum when partly within the State unconstitutional (see RAILWAYS). Serious damage was caused by floods in May, especially at Dallas. The railroads of the State suffered losses estimated at \$10,000,000. As a result of bitter feeling against negroes a race war broke out in the eastern part of the State in June. The trouble arose from the killing of two white men at Hemphill. Six negroes accused of the crime were taken from the jail and lynched on June 21, and on June 22 five other negroes were killed for alleged participation in the murder. Escapades of "night riders" in October in different places in the State caused Governor Campbell to offer a reward of \$100 for the arrest and conviction of any one threatening to burn a cotton gin, \$250 for conspiracy to burn gins, and \$500 for any person burning a gin.

STATE OFFICERS. Governor, T. M. Campbell; Lieutenant-Governor, A. B. Davidson; Secretary of State, W. R. Davie; Treasurer, Sam Sparks; Comptroller, John W. Stephens; Superintendent of Public Instruction, R. B. Cousins; Land Commissioner, J. T. Robison; Adjutant-General, J. O.

Newton; Attorney-General, R. V. Davidson; Commissioner of Insurance, Thos. B. Love—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Reuben R. Gaines; Associate Justices, Thomas J. Brown and F. A. Williams; Clerk, F. T. Connerly—all Democrats.

The State legislature of 1909 is composed of 30 Democrats and 1 Republican in the Senate, 130 Democrats and 3 Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under section Congress.

TEXAS FEVER. See VETERINARY SCIENCE.

TEXTILE MANUFACTURING. The *Textile World-Record*, in its annual report of mill construction in the textile trades, stated that the number of new mills built in the United States in 1908 was smaller than in any one of the previous nine years. The total was 222, as compared with 262 in 1907, and 245 in 1905, the next record for smallest mill construction. The effect of the financial conditions were seen in every branch of the textile industry and only in knitting establishments was the number of new mills in excess of the previous year. The comparative figures for new mill construction for the years 1904-1908 were as follows:

COMPARISON OF NEW MILL CONSTRUCTION.

	1908	1907	1906	1905	1904
Cotton	47	64	74	33	48
Woolen	23	25	56	38	45
Knitting	94	83	103	79	111
Silk	33	51	36	53	49
Miscellaneous	25	39	84	42	37
Totals	222	262	303	245	290

The new cotton mill construction was distributed between the New England, Southern, and Middle and Western States, North Carolina leading with 15 mills, followed by Massachusetts with 8, though the total number of spindles, 52,693, was less than half that of two large Massachusetts mills under construction and nearing completion. This is shown more fully by the accompanying table:

NEW COTTON MILLS.

	No.	Spindles	Looms
New England			
Massachusetts	8	115,000	108
Maine	1	.....	...
New Hampshire	1	.....	...
Rhode Island	1	.....	10
Totals	11	115,000	118
Southern States			
Alabama	1	5,000	...
Georgia	2	10,000	240
North Carolina	15	52,693	263
South Carolina	4	23,500	200
Texas	1	.....	...
Totals	23	91,193	762
Middle and Western States			
New Jersey	4	3,500	24
New York	1	.....	...
Pennsylvania	8	.....	2
Totals	13	3,500	26
Total	47	200,693	946

The total number of spindles for the world on August 30, 1908, was 128,923,659.

The total number of spindles for the United States, as reported by the Census Bureau for 1906, 1907, and 1908, is given in the accompanying table:

UNITED STATES GOVERNMENT CENSUS BUREAU.

Table of Cotton Spindles in the United States.

States	Year	No. of Mills	Cotton Spindles		*Other Spindles
			Total	Active	
Massachusetts	1908	203	9,446,380	9,415,363	63,920
	1907	204	9,158,389	9,097,236	70,462
	1906	210	8,904,725	8,790,793	.....
South Carolina....	1908	150	3,713,006	3,617,358	.....
	1907	145	3,609,969	3,502,036	.....
	1906	141	3,367,204	3,345,075	.....
North Carolina....	1908	293	2,944,404	2,861,446	8,240
	1907	276	2,681,386	2,604,444	6,556
	1906	251	2,396,703	2,341,792	.....
Rhode Island.....	1908	77	2,388,105	2,279,957	8,516
	1907	74	2,242,931	2,218,905	12,556
	1906	76	2,173,968	2,130,958	.....
Georgia	1908	154	1,792,790	1,757,686	13,876
	1907	149	1,682,506	1,610,004	14,060
	1906	138	1,573,450	1,546,998	.....
New Hampshire....	1908	41	1,320,503	1,318,327	39,302
	1907	44	1,325,135	1,307,357	50,520
	1906	46	1,329,027	1,296,445	.....
Connecticut	1908	85	1,240,296	1,236,906	45,154
	1907	86	1,222,239	1,215,435	52,630
	1906	80	1,181,913	1,174,527	.....
Maine	1908	35	987,188	978,188	24,632
	1907	35	976,017	966,864	40,853
	1906	34	931,570	912,593	.....
Alabama	1908	71	939,942	934,642	.....
	1907	71	904,244	876,944	.....
	1906	68	870,154	851,986	.....
New York.....	1908	135	928,316	910,604	106,044
	1907	128	927,796	900,506	110,862
	1906	112	852,820	802,254	.....
United States	1908	1,941	27,964,387	27,505,422	593,682
	1907	1,830	26,939,415	26,375,191	651,251
	1906	1,732	25,811,681	25,250,096	.....

*Spindles consuming cotton mixed with other fibres not shown separately for 1906.

No other State reports as many as 500,000 spindles. Of the total number of spindles, 27,964,387, in the United States August 31, 1908, 22,455,332 were ring spindles and 5,509,055 were mule spindles. Ring-frame spindles are preferred under ordinary conditions, for the ease and facility with which they may be operated. Increase in the number of ring spindles August 31, 1908, over number reported August 31, 1905, was over 4,500.

As regards the new woolen mills, none of them were large, and such as were built were designed for manufacturing worsted yarns or worsted fabrics. The number of knitting mills alone shows a gain over 1907, being 92 as compared with 83 in that year, and while there is the usual large increase in the States of New York and Pennsylvania, there are recorded 9 new mills for North Carolina and a large number scattered through the Western States. Many conditions seemed to favor the growth of the knitting industry in the South, chief of which is the number of small yarn mills in proximity to the factories and the fact that the work appeals to people living in small communities.

During 1908 there was a general depression in all branches of the textile industry, which necessarily involved curtailment of production and small or no profits to manufacturers. The stocks on hand were used up and there was little buying, but by the exercise of general prudence manufacturers and merchants, for the greater part, were able to withstand conditions, and at the end of the year were in more hopeful

shape than at its beginning. In the factories improvements in machinery were introduced and despite slack business everything was put in readiness to prepare for a general revival of commercial activity. In the South the cotton manufacturers, whose plants for the most part were very modern and well equipped, changed in many cases the character of the goods produced, and worked on those which would afford some small profit. In the cotton, as in other textile industries, labor conditions were good during the year, and labor troubles were conspicuous by their absence. The exports of cotton goods were considerably in excess of those of 1907, and in particular the exports to China, which fell off in 1907, were practically double the amounts for that year, and at the end of December this trade, which is a matter of great importance in the export business of the United States, looked rather promising.

The year was also a poor one for the woolen and worsted manufacture, but was marked by gradual improvement, so that at the end of the year conditions were not so far from normal as is shown by the accompanying tabular statement. Interest was manifested in the great strides that Passaic, N. J., had made as a textile manufacturing centre and especially its position as a centre for dress goods manufacture. This industry, first started in 1899 with the erection of a factory by a German syndicate, was followed by other mills for dress goods and worsted yarn, which proved so prosperous that in 1908 one of the largest and most up-to-date mills in the United States was begun, which is to have between 400 and 500 broad looms and 25,000 worsted spindles of the French system, as the mill was to be both a spinning and weaving plant. Passaic, at the end of 1908, was said to have 5,470 looms and over 200,000 spindles, and as a consumer of wool, as well as for making men's wear and dress goods, was pushing Lawrence, Mass., for first place. Lawrence has 8,090 looms and 236,264 spindles.

For silk manufacturing see under SILK. See also COTTON and WOOL. See also STRIKES and LOCKOUTS.

THALASSOTHERAPY. The treatment of disease by sea bathing and sea air was increasing in popularity in Europe during 1908. Both a tepid, mild sea bath and rough, vigorous surf bathing were found beneficial. In Austria, especially at Grado on the Adriatic, there is a happy combination of warm sea water with a high percentage of sodium chloride and iodide, and rachitic and scrofulous children are sent thither in great numbers, with marked beneficial results. The fourth annual Congress of Thalassotherapists was held at Fiume on this coast, on the last three days of September, 1908. The beneficent effect of sea air on tuberculosis and certain nervous diseases has long been known and taken advantage of, but the injection of sea water hypodermically is believed to be new. Remarkable results were claimed for this measure by Simon, a French physician, in tuberculosis, the intestinal ailments of infants, and in a wide range of skin diseases, for example, eczema and psoriasis. The water is sterilized and injected in graduated doses under the skin of the thigh, preferably. Sea water was also said to be drunk with benefit in tuberculosis, anæmic, and dyspepsia, one or more pints daily being taken in its natural state, sterilized, diluted, or carbonated.

THEATRE. See **DRAMA.**

THEOSOPHICAL SOCIETY, THE. An organization founded in New York City in 1875. Its headquarters were removed in 1879 to Adyar, Madras, India. The objects of the society are: To form a nucleus of the universal brotherhood of humanity, without distinction of race, creed, sex, or color; to encourage the study of comparative religion, philosophy, or science; to investigate unexplained laws of nature and the powers latent in man. It had in 1908 14 sections, each presided over by a general secretary. These are in America, Great Britain, India, Scandinavia, Holland, France, Italy, Germany, Australia, New Zealand, Netherlands, Cuba, Hungary and Finland. In 1908 the membership of the American section was about 2,600. The officers were as follows: President, Mrs. Annie Besant, Adyar, India; General Secretary of the American Section, Weller Van Hook, 103 State street, Chicago. Several other bodies in the United States use the same name, but are not affiliated.

THOMAS, CHARLES MITCHELL. An American naval officer, died at Monterey, Cal., on July 3, 1908. He was born in Philadelphia on October 1, 1846, and graduated at the United States Naval Academy in 1865. He became ensign in 1866, master in 1868, lieutenant in 1869, lieutenant-commander in 1880, commander in 1890, captain in 1899, and rear admiral in 1905. He commanded the second squadron of the battleship fleet in their cruise from Hampton Roads to San Francisco in 1907-1908, and for a short time succeeded Admiral Evans in command of the fleet, when the latter's health failed. He retired from active service while the fleet was on the Pacific coast.

THUMANN, PAUL. A German painter and illustrator, died in February, 1908. He was born at Tschacksdorf, in Brandenburg, Germany, on October 5, 1834. He studied painting at the academies in Berlin, Dresden, and Weimar. In 1866 he traveled on the continent and through England. Soon after, he was appointed professor at the Weimar Academy, and later, instructor at Dresden. In 1875 he was called to a professorship at the Berlin Academy, which he held until 1887. In 1892, after some years spent in Italy, he opened a studio in Berlin. His paintings dealt largely with historical or military subjects. Many of them depicted incidents of the war of 1870. His popular "Soldier's Farewell" belongs to this class. Others of his works are the "Five Scenes from the Life of Luther," in the Wartburg, near Eisenach, and the famous "Return of Arminius from the Battle in the Teutoburg Forest," in the Minden Gymnasium. He was no less famous as an illustrator; among numerous books for which he made drawings are: Chamisso's *Frauen Liebe und Leben*; Goethe's *Dichtung und Wahrheit*; and Tennyson's *Enoch Arden*.

TIBET. A country in Central Asia, a dependency of China. Estimates of the area vary from 463,000 to 814,000 square miles; of population, from 2,250,000 to 6,500,000. The lamas number about 500,000. Lhasa, the capital, has from 15,000 to 20,000 inhabitants. Barley, wheat, buckwheat, pulse, and vegetables are grown. Peaches and grapes grow in some favored localities. The domestic animals are buffaloes, camels, pigs, yak, and sheep. A large number of the people are pastoral nomads. Gold,

borax, and salt deposits are worked on a small scale. The imports of Tibet from British India in 1907-8 amounted to \$483,235; the exports of Tibet to India, \$753,594. The principal imports are cotton goods; the principal exports, wool (2,665,820 pounds) and curios. In 1907 the first consignment of rugs made in Tibet for an American carpet house reached Calcutta. The larger part of the Tibetan-Indian trade passes through Yatung and the Chumbi Valley. Gyangtse and Gartok were opened to trade by the treaty of 1904. The last installment of the indemnity of 2,500,000 rupees (rupee=32.44 cents) to the British was paid in 1908, and the British force was withdrawn from the Chumbi Valley. A new trade agreement between Great Britain and Tibet, to last for a term of ten years, was signed in April, 1908. Provision is made for the maintenance of posts and telegraphs; police regulations at the marts and along the routes are to be under the control of the Chinese government, and British subjects are to be under the jurisdiction of their consula. See **EXPLORATION.**

By the treaty of Sept. 7, 1904, after the Younghusband expedition reached Lhasa, Tibet agreed to pay Great Britain an indemnity of £166,000 in three instalments. These payments having been made, the British troops were withdrawn from the Chumbi Valley in 1908. In April, 1908, a new trade agreement between Tibet and Great Britain was signed, to remain in force ten years, subject to renewal for another ten years. It modifies existing regulations and agrees that British subjects shall be regarded as ex-territorial so long as China so regards them. For an account of the Dalai Lama's visit to Peking, see **CHINA**, paragraphs on *History*; and for Dr. Sven Hedin's explorations in Tibet, see **EXPLORATION.**

TICKS. See **ENTOMOLOGY.**

TIMOR. An island of the Malay Archipelago, the largest of the Lesser Sunda group. Area, 12,593 square miles; population, 400,000. The western, or Dutch, portion forms part of the Residency of Timor Archipelago, having, with other islands, an area of 17,782 square miles and 308,600 inhabitants in 1905. The larger, eastern, or Portuguese portion constitutes a colony having, together with the neighboring isle of Cambing, an area of 7,330 square miles and 200,000 inhabitants. Portuguese Timor produces coffee, cacao, nutmegs, sandalwood, and petroleum. Dilli, the port and capital, is built on a marsh. The natives are pagans, and under the immediate rule of their chiefs. The governor in 1908 was Capt. E. Marques. The military force consists of 323 men (212 natives). In 1908 the Lamakito and Batugedo tribes revolted and defeated the force sent against them.

TIN. As the United States does not figure as a producer of this metal, which is obtained mainly from Malay, the Dutch East Indies, and Bolivia, interest centres in the imports, which usually involve from 40 to 50 per cent. of the world's production. In 1907 the importation of tin into the United States amounted to 82,549,000 pounds, while in 1908 this amount fell to approximately 75,000,000 pounds. The price also decreased, the average for 1908 in New York being about 29½ cents as compared with 38.16 cents for 1907. This was due to continued overproduction. According to the *Engineering and*

Mining Journal, the world's supplies of tin for the 12 months ended Nov. 30 were as follows:

TIN SUPPLIES, 12 MONTHS ENDING NOV. 30, 1908.

(In Tons of 2,240 Pounds.)

	1907	1908
English production	4,700	4,400
Chinese exports	4,000	4,000
Straits to Europe and America	52,520	59,137
Straits to India and China	3,140	3,265
Australia to Europe and America	6,612	5,869
Australia, consumption	250	250
Banka and Billiton	13,483	13,765
Bolivia	15,500	16,250
Miscellaneous	250	250
Total	100,465	107,186

APPROXIMATE TIN DELIVERIES 12 MONTHS END- ED NOV. 30, 1908.

(In Tons of 2,240 Pounds.)

	1907	1908
United States	35,000	31,700
Great Britain	24,150	29,400
Other Europe	28,840	28,050
China and India	3,140	3,265
Other countries	4,500	4,250
Total	95,630	96,665

WORLD'S PRODUCTION OF TIN, 1906, 1907.

(In Tons of 2,240 Pounds.)

Mineral Industry, Vol. XVI.

	1906	1907
Cornwall	4,522	4,700
Straits	58,438	55,660
Banka and Billiton	11,250	13,944
Australia	6,888	6,612
China	4,000	4,000
Bolivia	16,394	17,729
Miscellaneous	400	500
Total	101,892	102,695

The United States contains a few deposits of tin, whose output up to 1908 has been inconsiderable. In 1907 there was reported by the United States Geological Survey a very small production of metallic tin in South Dakota, which, with concentrates from Alaska, from South Dakota, and from North Carolina-South Carolina deposits, was valued at \$33,285, against \$35,600 in 1906.

TOBACCO. The conditions surrounding the tobacco growers of the country during recent years were gradually improving, and while the production of 1908 had often been exceeded, and was reported as being under the 5-year average, the total value of the crop was estimated at about 15 per cent. above that average. According to government reports, the acreage in 1908 was 875,425 acres and the total production, 718,061,380 pounds, the average yield being 820.2 pounds per acre. The yield of cigar leaf alone was 141,842,000 pounds. In 1907 the acreage was less by 54,200 acres and the production by about 20,000,000 pounds, as compared with 1908. Kentucky was again the leading State, although the acreage, as compared with 1907, was reduced by 30,200 acres and the total crop by about 45,000,000 pounds. In 1908 Kentucky produced 195,600,000 pounds, being followed by North Carolina with 134,000,000 pounds, Virginia with 114,100,000 pounds, and Tennessee with 52,000,000 pounds. The acreage in these States was 240,000, 200,000, 140,000, and 65,000 acres, respectively. The total value of the tobacco crop in 1908 was \$74,130,000 and in 1907 \$71,411,000. The world's production in 1906 was 2,201,191,000 pounds, of which North America furnished 754,790,000 pounds, South America 103,717,000 pounds, Europe 623,543,000

pounds, Asia 696,169,000 pounds, Africa 20,847,000 pounds, and Oceania 2,125,000 pounds. In Asia, British India produced 450,000,000 pounds, and in Europe, Austria-Hungary yielded 187,253,000 pounds and Russia 162,020,000 pounds, these being the leading countries.

The crop of 1908 in the Dutch East Indian colonies was reported as very good, the Sumatra crop, which is exported to this country, being estimated at 274,764 bales. The Cuban exports in 1908 amounted to 332,327 bales of leaf, 188,846,784 cigars, and 163,310,336 cigarettes. The largest purchaser of leaf, as reported in *Tobacco Leaf*, was the United States with 236,849 bales, Germany being next with 51,590 bales. England bought 70,677,528 Cuban cigars, the United States 47,669,742, Germany 24,183,131, and France 11,418,782. There was an increase in all exports except cigarettes and all tobacco-using countries increased their imports from Cuba as compared with 1907, except Austria, Canada, and the United States. Turkish cigarette tobacco is now imported by this country to the value of about \$4,000,000, as against \$25,000 in 1896. The cheapest Turkish tobacco is sold in New York at \$1 per pound. According to the internal revenue returns there were consumed in this country during the year ending June 30, 1908, over 6,860,000,000 cigars, 380,000,000 pounds of manufactured tobacco, 805,000,000 little cigars, about 3,625,000,000 cigarettes, and over 21,000,000 pounds of snuff. The American Consul at Nanking states that in China cigarette smoking, introduced only recently, is becoming very general among all classes. In the United States remarkable conditions existed in some of the tobacco growing sections of Kentucky and Tennessee (q. v.), where the so-called "night riders" endeavored to dictate prices to the tobacco trust by means of threats and violence to trust officials and sympathizers, as well as to neutral tobacco growers. Property was destroyed and murder committed.

TOGOLAND. A German protectorate in West Africa. Area, about 33,700 square miles; population, 1,000,000. In 1907 there were 288 whites (273 Germans). Lomo is the chief port and capital. Government schools have over 300 pupils; mission schools, 7,000 pupils. The forests contain oil-palms, rubber trees, and dyewoods. The natives cultivate maize, yams, tapioca, ginger, and bananas. On European plantations there are cultivated cotton, cacao, coffee, kola, and oil-palms. The export of cotton in 1907-8 was 1,674 bales of 250 kilos each (1 kilo = 2.15 pounds). In 1907 the imports amounted to 6,699,684 marks, mainly cotton goods, iron goods, spirits, tobacco, and timber; the exports, 5,915,609 marks, mainly rubber, palm-nuts, and palm-oil, maize, animals, cotton, and ivory. Over one-half the trade is with Germany. At the end of 1907 there were 102 miles of railway and 250 miles of telegraph. The budget for 1908-9 balanced at 6,218,560 marks. The Governor in 1908 was Count von Zech-Neuhofen.

In his address on the affairs of the colonies on Feb. 18, Herr Dernburg, imperial secretary of state for the colonies, declared the economic conditions of Togoland satisfactory and that the railway from Lomo to Palme on Jan. 27, 1907, was now paying, and that it had been leased on terms which would give the colony a surplus in a few years.

TONGA ISLANDS, or **FRIENDLY ISLANDS**. A British protectorate in the Western Pacific. Area, 390 square miles; population (1906), 21,240. In 1905 there were 240 whites. In 1907 imports amounted to £97,820; exports, £134,104. The latter were principally copra, £119,717, and fruits, £10,002. The trade is mostly with Australia and New Zealand. The native government is an hereditary constitutional monarchy. The British Agent and Consul—in 1908, Hamilton Hunter—is under the High Commissioner for the Western Pacific. The revenue and expenditure in 1907 were £34,912 and £33,540, respectively.

TONGKING, or **TONQUIN**. A French protectorate in Indo-China. Area, 46,000 square miles; population, estimated in 1906 at 5,888,589, including 33,000 Chinese and 4,000 Europeans. There are 400,000 Roman Catholics. Hanoi, the chief town, with over 103,000 inhabitants, is the capital of French Indo-China (q. v.). It contains a school of medicine for natives. The principal product is rice, other crops being sugar-cane, cotton, coffee, and tobacco. The number of cattle is reported to be about 1,000,000. About 1,100,000 pounds of raw silk are produced annually, three-fifths of this being consumed in native manufactures. A sericultural station has been established at Phu-lang-thuong. At Hanoi and Haiphong there are large cotton spinning mills. A new rubber tree, of which high hopes are entertained, has been discovered in the mountainous region of the north. The only mining enterprise of importance in Indo-China is carried on at Hongay, on the coast, north of Haiphong, where about 300,000 tons of anthracite coal are mined annually. The imports and exports are included in those of French Indo-China. There is a French Superior Resident at Hanoi. The local budget for 1908 balanced at 5,893,000 francs.

TORPEDO. The introduction of the turbine, the superheater, and more accurate gyroscopic gears, has greatly increased the offensive power of torpedoes and torpedo craft; and has necessitated increasing the effective range of torpedo defense guns to over 4,000 yards. In the British Navy Engineer-Lieutenant S. A. Harcastle, R. N., invented a 21-inch torpedo with an effective range of 7,000 yards and a speed of 31 knots, carrying the same charge as at present, 200 pounds. The latest model building at the Royal Gun Factory in 1908 had a maximum speed of 42 knots for 1,000 yards; and only 21 knots for the maximum range of 5,000 yards. No torpedo in use in the British Navy in 1908 had a diameter greater than 18 inches.

A new torpedo range, 7,000 yards, was to be established on the shores of Loch Long; and a torpedo factory, at Battery Park in the town of Greenock. As far as possible the personnel of the Woolwich Torpedo Factory was to be transferred to Greenock.

The Bliss-Leavitt torpedo supplied in 1908 to the newest American ships was of 21 inches' diameter, and carried a charge of 300 pounds. The maximum range was given as 4,000 yards at 27 knots. The latest German type in 1908 had a diameter of 19.5 inches, a charge of 220 pounds, and a range of 4,000 yards at 20 knots.

TOWER, CHARLEMAGNE. An American diplomatist, ambassador to Germany from 1902 until his resignation, which took effect on June 1, 1908. He was born in Philadelphia on April 17, 1848, and graduated at Harvard in 1872. After studying in Europe, he was admitted to the bar in 1878. He removed to Duluth, Minn., in 1882, and became president of the Duluth and Iron Range Railroad. He was appointed minister to Austria-Hungary in 1897, and in 1899 became ambassador to Russia. He is a man of large wealth, and as the representative of the United States in his various posts was known for his brilliant entertainment. See **GERMANY**, and **HILL**, DAVID JAYNE.

TRADE UNIONS. Probably the most notable trade-union events in the United States in 1908 were the denial of the right to carry on a boycott (q. v.) by the use of union labels and "unfair lists," on the ground that a union thus became a combination in restraint of trade; the fight over the proper use of the injunction (q. v.) in labor disputes; and the political activities of the American Federation of Labor (q. v.). Of almost equal interest was the decision in January by the Supreme Court of the case of *Adair vs. U. S.*, holding that portion of the Erdman Act of 1898 which forbids the discharge by an interstate railway of an employee because he belongs to a trade union, to be unconstitutional. O. B. Coppage was discharged for such reason by the Louisville and Nashville Railroad. The United States Circuit Court for Eastern Kentucky gave Coppage damages for such discharge, holding it to have been illegal under the Erdman Act. The Supreme Court, to which the case was then appealed, held that an employer has the right to discharge an employee because he belongs to a union, even as an employee may quit work because of the employment of non-union men. Any legislation disturbing such equality of rights was held by the court to be an arbitrary interference with the freedom of contract. Moreover, that provision of the law in question was held to be an undue stretching of the powers of Congress to regulate commerce. For Congress to forbid the discharge of an employee on any ground is to regulate the relations of employer to employee, and this power once admitted could be stretched to provide that interstate carriers should employ only union, or only non-union, men. Organized labor resented this decision. It claimed that this virtually legalized the black-list for employers, whereas the boycott had just been declared illegal for employees.

Another decision of interest was that of the Court of Appeals of Texas in the case of the *St. Louis Southwestern Railway Company of Texas vs. Thompson*. The latter, a railway engineer and a member of the Brotherhood of Locomotive Engineers, frequently served as an expert witness in damage suits against the above railway. The general manager of the road, it was alleged, practically forced Thompson out of the Brotherhood, thus causing him the loss of a valuable insurance policy. Upon the fourth and final decision of the case the court relieved the union of financial responsibility, but compelled the railway company to pay \$500 actual and \$2,000 penalty damages.

The United Mine Workers of America at their 19th annual convention at Indianapolis in Feb-

ruary accepted the resignation of John Mitchell, who for nine years and seven months had served as President. Mr. T. L. Lewis was chosen his successor by an almost unanimous vote. The most significant utterances of the convention dealt with the observance of trade agreements with employers. Secretary Wm. D. Haywood of the Western Federation of Miners protested against such contracts as reducing the opportunity to strike, especially to strike sympathetically. President Mitchell condemned this criticism in most vigorous terms. He declared the violation of contracts was injurious to the welfare of the men, and was destructive of one of the fundamental and most beneficial principles of the union. He showed that wages to-day are double those of ten years ago when miners could strike at any time. Moreover, he said, if unions retain the right of the sympathetic strike they must grant to the mine operators the right to use the sympathetic lockout.

The International Printing Pressmen and Assistants' Union inaugurated a campaign for an eight-hour day in November, 1907. They have been successful in almost every city in the United States. A few firms here and there refused to grant the demand, and in November, 1908, small numbers of members on strike were reported. All these were paid strike benefits by the Union, and this was done without depleting the \$75,000 strike fund. The total expenditures in the prosecution of this campaign were about \$900,000 during the first year. At the same time about 2,200 new members were added.

The International Typographical Union started its old-age pension scheme in 1908. This was adopted at the 1907 convention, and ratified by a referendum vote in December following. Members 60 years of age, who have been in the Union 20 years, and who earn less than \$4 per week, are entitled to a pension of \$4 per week. In November, 1908, there were 476 pensioners being carried by the Union at an annual cost of \$100,000.

Undoubtedly one of the causes of the absence of serious strikes in the United States in 1908, a year of industrial depression, was the willingness of both employers and unions to maintain trade agreements. This was well illustrated at Fall River, Massachusetts, where the sliding scale agreement led to lower wages without disruption of the contract by the unions. (See INDUSTRIAL ARBITRATION.) To this same end contributed the stand taken at the very beginning of the year by the American Federation of Labor, that everywhere wage-reductions should be resisted by the full strength of organized labor.

GERMANY. At the close of 1907, the general federation of trade unions in Germany numbered 1,880,000, an increase of about 90 per cent. in four years. The German unions have in the last year or two entered more and more extensively into the policy of granting benefits for injury, sickness, or unemployment. In 1906 the total expenditures by federated unions for various benefits amounted to 36,963,413 marks, or 21.9 marks per member. The contributions per member averaged 24.6 marks. The expenditures have greatly increased, not only because of the new benefits, but also because of a more aggressive policy. Most of the trade unions are now accumulating considerable funds for

use in strikes and lockouts. The total of such funds in 1906 was 25,312,000 marks, or three times the amount in 1901. The unions have found the policy advantageous, for strikes are less necessary to enforce their demands and lockouts are less frequent when the employer knows that a large emergency fund is on hand.

FRANCE. Among various tendencies now manifest among French trade unions is the more complete development of the idea of confederation and consolidation. The French unions are largely imbued with socialistic doctrines, and differences on theoretical points have heretofore prevented united action. This state of affairs is being gradually overcome by the recently organized General Federation of Labor. This organization showed an unusually aggressive spirit during the past year. Among its fundamental principles are the general strike to be engaged in by all workmen as well as public employees, and opposition to international warfare. During the year the federation officials made an attempt, only partially successful, to organize the postmen and to spread the new ideas among the army. See STRIKES AND LOCK-OUTS.

The Nineteenth Congress of the International Miners' Federation met at Paris June 8th. British, French, German, Austrian, and Belgian delegations were present. Resolutions were passed demanding the extension of the eight-hour day to surface workers and the reduction of the legal day to six hours in case of fire-damp and very high temperatures. The use of female labor in mines was condemned. The German delegation proposed rigorous restrictions on the employment of children under sixteen in mining, but the French and English delegates refrained from voting on the proposal. Other resolutions endorsed international arbitration as a substitute for war and favored the nationalization of mines.

ENGLAND. The strength of trade unionism in English politics continues to grow. In the by-elections of 1908, there were many combinations between the Laborites and the Socialists. In districts having labor candidates this combination polled 323,000 out of a total of 859,000 votes. Trade unionists constitute by far the majority of the Labor Party and furnish most of its funds. At the meeting of the Party at Hull, Jan. 22nd-23rd, there were represented 276 organizations with a total membership of 1,072,431. A proposed amendment to the constitution of the Labor Party "to organize and maintain a parliamentary labor party with its own whips and policy" was almost unanimously rejected. A resolution, however, favoring "the overthrow of the present system of capitalism and the institution of a system of public ownership and control of all the means of life" was adopted by delegates representing 514,000 votes for and 469,000 against. It was generally believed by commentators that this socialistic declaration, being carried by only a small majority, need not be viewed as a commitment of the Labor Party to the whole scheme involved in Socialism. Following the adoption of this resolution, the Congress, with only one dissenting vote, adopted a declaration repudiating the attacks made upon it on the ground that Socialism is antagonistic to the family organization and to religion. Among the achievements claimed by the Labor Party in the legislation

of 1908 were the Old Age Pensions Act (q. v.); a law enabling educational authorities to provide food at public expenditure for destitute school children; and a law establishing an eight-hour day for miners. Its present platform includes the fixing of a minimum legal wage in certain sweated industries, and a measure granting the right to work.

A judicial decision, considered to be the most important in trade-union circles since the famous Taff-Vale decision, was handed down the first week of December by the London Court of Appeal in the case of *Osborne vs. the Amalgamated Society of Railway Servants*. The court declared that a trade union was not competent to provide for representation in Parliament by means of a compulsory levy on its members. The case is to be taken to the House of Lords. The immediate effect of the decision is to compel the unions to institute a system of voluntary contributions for the support of their representatives in the House of Commons. Should this decision of the London court be reversed by the Lords, trade unions will have conferred upon them powers not enjoyed by other corporations or quasi-corporations, and their political activities would be greatly increased.

At the annual Trade-Union Congress, Nottingham, Sept. 10th-12th, resolutions were passed expressing alarm at the increasing number of deaths and accidents from motor traffic, favoring a system of compulsory state insurance, condemning the Unemployed Workmen's Act, and favoring "a national system of education, under full popular control, free and secular, from the primary school to the University." A resolution favoring the principles of arbitration and conciliation, both voluntary and compulsory, was rejected. The Irish Trade-Union Congress in June resolved to follow the policy of the English unions in seeking political power by independent representation in Parliament. This will be done through direct affiliation with the British Labor Party. Similarly the Miners' Federation at its annual convention at Chester, Oct. 8th-9th, decided to make formal application for admission to the Labor Party, on condition that present Miners' members in Parliament be not required to sign the constitution of the Labor Party. This convention also passed resolutions favoring old-age pensions, and the nationalization of mines, railways, and all means of production.

AUSTRALIA. In addition to the great interest in the matter of industrial arbitration and conciliation (q. v.), trade unions in Australia were greatly agitated by a decision of the Federal High Court on the legal status of the union label on Aug. 4th. Such labels have only recently come into vogue among the Australian unions. No state has yet legislated on them, and the recent Federal Trademarks Act authorizing the registration of union labels as trademarks had not been subject to court review preceding this decision. The Attorney-General of New South Wales at the instance of several brewing companies challenged the constitutionality of the law. He gained his point. The court held, by a division of 3 to 2, that a registrable trademark must signify ownership and must be affixed by the owner of the goods, and not by the persons making them. The court further held that the plaintiffs were compelled by the law to tell whether they did or did not

use union labor exclusively, a matter of much importance to many consumers; hence the law was judged to be an impediment to the plaintiffs in carrying on their business. As a result of this decision the unions demand a change in the constitution so as to remove from the court its power to declare an act of Parliament unconstitutional. Another decision of great interest to Australian workingmen was that in which the Federal High Court, two judges dissenting, declared unconstitutional that portion of the Tariff Act which regulated the rate of import duty by a consideration of the rate of wages paid in the industries affected by the imports. The object of this portion of the Act was to compel employers to pay fair and reasonable wages in order to secure tariff protection. The Court held that for Parliament to enforce wage conditions by means of tariff duties was *ultra vires*, that is, beyond the powers granted by the Constitution. As a result of this decision the Premier proposed in October an amendment to the Constitution empowering the Commonwealth Parliament to secure fair conditions for workmen in protected industries.

In recent years a movement for the organization of women workers has made great progress. The number of unions affiliated with the general federations and having women members increased from 21 in 1900 to 36 in January, 1908, while the number of women members increased from 22,844 to 136,929.

The membership in trade unions in 1908 decreased in the United States, but made decided gains in France. A fairly reliable estimate of trade-unionists in principal countries in 1908 was as follows: North America, 3,000,000; Great Britain, 2,250,000; Germany, 2,500,000; France, 1,500,000; Austria, 700,000; Russia, 250,000; Spain, 250,000; Italy, 225,000; Belgium, 150,000; Holland, 75,000; Australasia, 200,000; Scandinavia, 200,000. See **INDUSTRIAL ARBITRATION AND CONCILIATION; WOMEN IN INDUSTRY; LABOR, AMERICAN FEDERATION OF; INJUNCTION**, especial judicial decisions noted; and **BOYCOTT**.

TRANSMISSION OF ELECTRICAL POWER. The development of hydro-electric power schemes received a decided check during 1908, due to the long period of financial depression. A number of smaller plants were completed, but the promotion of new enterprises met with little favor. Construction work on the large power plant on the Susquehanna River, which was rapidly nearing completion in 1907, was practically suspended, and the same was true of several other large enterprises. The most interesting plant put into operation in 1908 was that at Grand Rapids, Michigan. The transmission lines of this plant were operated at 110,000 volts, this being the first instance of the commercial use of a pressure above 70,000 volts, which was the record for 1907. The use of this high pressure was made possible by the employment of the suspension type of insulation. *i. e.*, several insulator units suspended in series from the cross arms and the wire suspended in turn from the last unit. This type of insulator was put on the market in 1907, and during that and the following year was extensively used. Another type of high voltage insulator, which received considerable attention in 1908, although it was still in the experimental stage, was built

up of three corrugated porcelain tubes mounted on a steel base and forming a pyramidal structure, the tubes coming together at the apex. The advantage of this insulator was that it avoided the use of a pin, which in an ordinary petticoat insulator extended up through the insulator to within a few inches of the live conductor, and is separated from the conductor only by a comparatively thin layer of porcelain; the failure of the ordinary insulator is almost invariably due to puncturing this layer of porcelain. In the new structural form of insulator the live conductor could be separated from all grounded metal parts by a distance of from two to three feet. On account of the extremely low water that prevailed in the rivers of the eastern part of the United States during the summer and autumn months of 1908 a number of water power plants were unable to supply their usual demands for power. In most instances the deficit in water power was made up by the use of steam, either from the company's own reserve plant or by the consumer himself. This unusually dry season was a striking object lesson in the necessity of considering with the greatest care the minimum flow conditions when designing hydro-electric plants. The construction work on the 80,000 kilowatt plant of the Great Western Electric Company of California was so far completed during the year as to enable the Company to begin the delivery of power. The development on the Pianbanha River, Brazil, was also partially completed; this plant will ultimately generate 50,000 horsepower, and will be one of the largest in South America. Work was also begun during the year on an extensive hydro-electric development at Simla, India.

TRANSVAAL, THE. A British colony in South Africa. Area, 111,196 square miles; population (1907), 1,349,450. In 1904 there were 300,225 whites. Pretoria, the capital, had 36,700 inhabitants (21,161 white) in 1904; Johannesburg, 158,580 (83,902 white). The number of children in schools supervised by the Government was 48,265 in 1907, of whom 35,791 were white, 1,268 "colored," and 11,206 native.

PRODUCTION. Stock raising is more important than agriculture. Cereals, meat, and other foodstuffs have to be imported. Only about 50,000 acres are in cultivation. The ranches average 6,000 acres in extent. A syndicate has spent £3,500 in starting cotton cultivation in the Zoutpansberg district, where some 10,000 acres will be under cotton in 1909. Mining is the most important occupation. The gold output in 1907 was 6,450,740 ounces (£27,400,992). The dividends paid by the Rand companies in 1907 amounted to 27.4 per cent. of their nominal issue capital and 70 per cent. of the profits for the year. In 1908 the gold output was £20,957,610. The diamond output in 1907 was 2,062,855 carats, valued at £2,268,075. The coal output in 1907 was 2,883,423 tons, valued at £773,649. The output of other minerals in the year ending June 30, 1907, was: Silver, 690,732 ounces, valued at £92,874; chemicals, etc., £27,884; stone, brick, salt, etc., £202,803; lime, £57,516; copper ore, 784 tons, £36,703; tin ore, 625 tons, £27,184; lead, 1,400 tons, £18,584; asbestos, 88 tons, £3,655; magnesite, 1,040 tons, £4,106; antimony, 17 tons, £127. In June, 1907,

gold mining employed 180,563 persons, of whom 17,165 were whites, 51,517 Chinese, and 111,881 natives and other colored. Coal mining employed at the same time 10,914 persons, of whom 504 were whites, and 10,410 natives and others. In accordance with the letters patent, no more permits are granted for the importation of Chinese coolies, and those in the colony have to be shipped back upon the expiration of their term of indenture. The first batch left in June, 1907. The number of Chinese and Kafirs employed at the mines and mills on Jan. 1st of each year for the last three years was as follows:

	1907	1908	1909
Chinese	53,828	31,840	12,283
Kafirs	83,567	118,204	148,722
Total	137,395	150,044	161,005

Thus the Chinese are decreasing and the Kafirs increasing. Most of the natives now coming to the mines are from north of the Zambesi, and require some time to be accustomed to the work and the climate of the Transvaal.

COMMERCE AND COMMUNICATIONS. The Transvaal is included in the South African Customs Union (see BRITISH SOUTH AFRICA). The imports and exports in 1907 amounted to £15,754,944 and £31,232,521, respectively. The imports are mainly food and drink, textiles, chemicals, and machinery. The exports are mainly gold, diamonds, living animals, wool, angora hair, tobacco, and coal. Over two-fifths of the imports are from Great Britain, and about one-fifth from South Africa. The railways of the Transvaal and Orange River Colony (q. v.) are administered conjointly by the Inter-colonial Council. At the end of 1907 there were nearly 2,400 miles of railway in both colonies. The addition to Government lines, both new and acquired, during 1907 was 392 miles. All railways in both colonies are now the property of their respective governments, except the line from Bethlehem to Kroonstad, 88 1-2 miles, which is worked by the Natal Government, and 28 1-4 miles of private line. At the end of 1907 there were 163 miles in construction. All new construction was then suspended, owing to financial considerations. There are about 2,500 miles of telegraph line.

GOVERNMENT, ETC. Responsible government was established on Dec. 6, 1906. The members of the Legislative Assembly are elected by universal white suffrage. The Governor, who is also High Commissioner for South Africa, in 1908 was the Earl of Selborne. The Premier was General Botha. The colonial military forces consist of 5,000 active volunteers, 5,000 reserve volunteers, and 4,000 cadets. The revenue in 1907-8 was £4,670,218; the expenditure, £4,120,451; the public debt, £28,550,000.

HISTORY.

THE STATUS OF ASIATICS. After the Imperial government's assent to the Immigration Restriction and Asiatic Registration Acts in December, 1907, a meeting of protest was held by the Indians at Johannesburg (Jan. 1, 1908), and a resolution unanimously passed declaring that the government had failed in its duty of pro-

tecting the weak. The Registration Act imposed the penalty of deportation on Asiatics not registering according to its terms, which included identification by means of finger-prints, a requirement offensive to educated Indians as associated with the identification of criminals. Asiatics without registration certificates were ordered to leave the country within periods ranging from 4 to 14 days, and recusants were arrested. The case for the Indians was stated thus in letters and articles by their supporters in the press: It was charged that since the annexation the treatment of Indians had grown worse, although the Boer severity toward aliens was one of the grievances urged by the British, before the war, against the Kruger government. Registration had been required by the law of 1885 as a condition of residence, but when question arose of its validity, the Indians taking the advice of Lord Milner in 1903 registered anew. It was then understood that they would not be required to register again. The present act retained the requirements of the law of 1885 and imposed new ones. It required registration not only of newcomers, but of those who had already twice registered, and it gave the government the right to deport recusants. On the other hand, Mr. Smuts, Colonial Secretary, declared on Jan. 4 at Pretoria that the Registration Act protected Indians who had a legal right to residence. He said that the 5,000 Asiatics who had left the country on account of the act had no right to residence, and that of the 9,500 who remained but refused to register a large proportion, were influenced in their course by agitation. The rights of Asiatics who had come to the Transvaal before the war were admitted. There was no feeling against Asiatics already settled in the Transvaal, but a determination to prevent further immigration and keep the Transvaal a white man's country. False permits had been issued and new immigrants came in with permits issued to those already there. Hence the strict provisions as to registration. The question turned on the treatment of residents—the strictness as to the false permits, the suspicion that owing to lax administration many appeared to be residents who really were not. The Indians complained that though they had twice registered, they were now required to do so again under conditions associated with the criminal class. Mr. Ghandi, the leader of the Indians, offered a compromise. He declared the bad features of the law were the element of compulsion and the requirement of identification by finger-prints.

Finally, on Jan. 30, the government agreed to a compromise, whereby the Asiatics were to register voluntarily within three months and the law was to be modified in some of its provisions including that requiring finger-print identification for which was substituted the signatures of educated persons, property owners, etc. While the prevention of further immigration was to be enforced, the government agreed to recognize the vested interests of Asiatics already settled in the country. A number of "passive resisters" who had been arrested were now released. A misunderstanding as to the government's promises subsequently arose, the Indians insisting on more radical changes than the government was willing to make. In May Mr. Ghandi asked that his voluntary ap-

plication be returned. The amendment of the Registration law was introduced on Aug. 21. It was designed to meet the objections originally raised. It fixed Oct. 1 to Nov. 30 as the registration period and was to go into effect on Sept. 21. It entitled Asiatics to registration after they have proved to the registrar three years' previous residence; it required Asiatics to give their name and address with their signature and also to produce a certificate, or, failing a certificate, a finger and thumb impression. It also imposed a different educational test on Indians from that imposed on Europeans. These changes did not meet the demands of the Indians and the trouble continued. On Oct. 14, Mr. Ghandi was sentenced to two months' imprisonment at hard labor for refusing to conform to the law and a number of other Indians were sentenced to imprisonment.

REGULATION OF THE MINES. The Mining Industry Commission issued its report on Mar. 10. It recommended among other things the taxation of unworked claims, the eight hour day for miners, the passage of law requiring one white miner for every machine drill, and the non-importation of labor from the Portuguese territories. The draft of the Gold bill was published on Mar. 30. Its main purpose was to simplify and reconcile the various mining laws. It permitted prospecting on Crown lands but not on private lands except with consent of the owner, defined the methods for establishing and working claims, and the measures to be taken if insufficient work was done, empowered the government to establish a School of Mines, and contained provision against the illicit gold trade. It was passed on July 15.

Parliament opened on June 15. Lord Selborne announced that the proposed loan of £5,000,000 had been deferred and that the government would raise money by short-dated treasury bills. The government was planning extensive public works and the establishment of a Land Settlement Board. He reported that 31,157 Chinese had been repatriated, that the supply of native labor was sufficient, and that the mining industry was on a sound basis. See **BRITISH SOUTH AFRICA.**

TRINGANU. See **KELANTAN AND TRINGANU.**

TRINIDAD. A British West India island, lying opposite the delta of the Orinoco and forming together with Tobago a colony. Area: Trinidad, 1,754 square miles; Tobago, 114. Population (1906): Trinidad, 306,830; Tobago, 20,570, mostly negroes and East Indian coolies. Port of Spain, the capital, had 56,100 inhabitants in 1901. The eighteen sugar plantations of Trinidad employed in 1907 5,922 East Indians and 5,619 West Indians, and produced 50,564 tons of sugar. The principal products and exports in 1907 were: Sugar, 46,270 tons; molasses, 524,926 tons; rum, 185,483 gallons; bitters, 34,866 gallons; cacao, 49,730,576 pounds; cotton (1907-08), 11,300 pounds; coconuts, 14,868,000; rubber, 4,444 pounds; bananas, 56,437 bunches and crates; oranges, 2,991 packages; asphalt from Pitch Lake, 141,006 tons; manjak, 1,806 tons. Manjak mining is increasing; the output in 1907-08 was 2,114 tons. The petroleum fields are being developed, and a geological survey of them has been made. The fruit industry is also extending. In 1907-08 the imports amounted to

£3,374,824; the exports, £3,907,503. The leading imports are flour, provisions, fish, textiles, hardware, and timber. The distribution of the trade in 1907-08 among the principal countries of origin and destination is shown in the following:

From and to	Imports	Exports
Great Britain.....	£1,050,768	\$ 821,321
British Colonies.....	314,463	313,936
United States.....	817,067	1,015,777
Venezuela.....	909,383	374,327
Other foreign countries..	283,153	1,382,142

There was an increase over 1906-07 of £781,957 in the exports to foreign countries, due mainly to the increased export of cacao to France, which rose from £269,539 to £1,025,748. There are over 80 miles of railway and 177 miles of telegraph line. The revenue in 1907-08 was £871,201; the expenditure, £781,038; the public debt, £1,075,053.

TROPICAL MEDICINE. The opening up of vast areas of tropical and subtropical lands to exploitation and settlement by Europeans and Americans gave an impetus to the study of the diseases incident to these climates, and a large amount of brilliant and useful work was done in the opening years of the twentieth century toward making life safe for white men, as in the case of the Panama Canal Zone. Dr. J. M. Anders, President of the American Society of Tropical Medicine, at a meeting of this society in March, 1908, gave a résumé of the year's progress in this department of medical science. While no epochal discoveries were made, there had been a considerable net gain in our knowledge. Continued study of the plague confirmed the theory that the rat flea was the principal disseminator of the disease. The Indian rat flea *Pulex cheopis*, it was proved, would bite man; this had been a subject of controversy. It is a flea common in many parts of the world, and identical with *Pulex pallidus* of Australia and *Pulex philippensis* of Manila. It was also proved that the *Ceratophyllus fasciatus* and *Pulex irritans* were capable of infecting animals. Ashburn and Craig completed their studies of *Filaria philippensis*, discovered by them in 1906, and showed that complete development of this blood parasite took place in the mosquito, thus adding another communicable disease likely to be carried by this insect. Its rôle in the propagation of malaria and yellow fever is too well known to need comment. Hewlett and de Korte conducted researches into the causation of beri-beri and believe that this disease is due to a protozoon infection. This is contrary to the belief of many authorities that the disease is caused by faulty alimentation. These authors found in the urine of beri-beri patients three varieties of refraction cells, believed to be degenerate cells or protozoa, and they believe the urine to be the eliminating and infectious mediums. They found a disease in monkeys similar to beri-beri in its manifestations and symptoms. Ashburn and Wright in the Philippine Islands examined the stools of 100 healthy soldiers with no history or symptoms of dysentery. They found *entamoeba coli* present in 72 cases. This is interesting for comparison with the recently discovered fact that healthy individuals may harbor typhoid bacilli in the intestinal tract and disseminate the disease without knowing it (see TYPHOID FEVER), and adds an-

other difficulty to prophylaxis. Anemia in Porto Rico was the subject of investigation by the Permanent Commission for the Suppression of Uncinariasis. It was estimated that 90 per cent. of the population suffer from this scourge. The Commission treated 89,233 patients and report that complete cure resulted in 25.71 per cent.; practical cure in 17.88 per cent.; under treatment 40 per cent., and deaths 0.21 per cent. Several journals in 1908 were devoted to the subject of tropical medicine, viz., *The Philippine Journal of Science*, *Journal of Tropical Medicine and Hygiene*, *Annals of Tropical Medicine and Parasitology* (published by the Liverpool School of Tropical Medicine), and the *United States Naval Medicine Bulletin*. The two latter were new. See PLAGUE; INSECTS AND THE PROPAGATION OF DISEASE; MALARIA; SLEEPING SICKNESS.

TRUST COMPANIES. See LOAN AND TRUST COMPANIES.

TRUSTS. The discussion of the growth and control of industrial combinations continued with unabated interest and volume during 1908. A great deal of attention was given to the merits and demerits of the Sherman Anti-Trust law, the advisability of its retention, and means for its amendment. The Bureau of Corporations continued its investigation of leading trusts and its Commissioner summarized the advantages of the first five years of its activity. The prosecutions undertaken as a conspicuous feature of the Roosevelt administration were continued.

SHERMAN ACT. The number of those demanding an amendment to the anti-trust law greatly increased in 1908. on Feb. 12th Senator Beveridge declared that the most urgent legislation needed by honest business was a law legalizing capitalistic combinations for honest purposes. Commissioner of Corporations Herbert Knox Smith stated in his 1908 report, "Corporate combination seems to be not only an economic necessity but also largely an accomplished fact. The mere prohibition of commercial power, simply because such power is the result of corporate combination, by no means meets the real evil. It is not the existence of industrial power, but rather its misuse, that is the real problem." President Roosevelt repeatedly urged that beneficial combinations be legalized, on the ground that combination is necessary and inevitable under modern industrial conditions. He declared it to be "profoundly immoral to keep on the statute books a law, nominally in the interest of public morality, that really puts a premium upon public immorality by undertaking to forbid honest men from doing what must be done under modern business conditions."

At the twelfth annual meeting of the American Academy of Political and Social Science at Philadelphia, April 10th and 11th, the subject of the relation of the Government to industry was considered from many points of view. (See *The Annals of the Academy* for July.) The most frequent criticism upon the Sherman Act has been that it prohibits all combinations, both good and bad; that it does not aim merely at unreasonable restraints of trade, but reasonable ones as well. From this it is argued that the law not only has checked the economic development of the country, but also has retarded the growth of the better features of corporations, such as profit-sharing, by raising doubts as to their legality and permanence.

Very great stimulus was given to the demand for a change in the Sherman Act by the decision of the Supreme Court holding a trade-union boycott a conspiracy in restraint of trade as defined in that statute (see *BOYCOTT and LABOR, AMERICAN FEDERATION OF*).

In April a bill, known as the Warner Bill, to amend the trust law, drawn by President Seth Low and others of the National Civic Federation, in consultation with President Roosevelt, members of the Cabinet, and prominent labor leaders, was introduced into Congress. The essential features of this bill included many of the recommendations of the Commissioner of Corporations and others experienced in the administration of the trust law, as well as in the evils of trust management. Its main features may be presented therefore, though the bill was not acted on. The bill presented a plan for the registration of corporations and labor unions with the Commissioner of Corporations. The former were required to state their purposes, contracts, and activities, while the latter were to file simply copies of their charters and the names and addresses of officers. The Commissioner was authorized to cancel the registration of any concern at his discretion. Contracts made subsequent to registration were required to be filed with the Commissioner; if such were approved as not "unreasonable" restraint of trade, no prosecution could be based on them. The bill also provided for pooling agreements by railways, under the general supervision of the Interstate Commerce Commission. Labor unions were guaranteed the right to strike and to combine with each other or to contract with employers, in order peacefully to obtain satisfactory working conditions. This last provision was not intended, however, to legalize the boycott. The fundamental aims of the bill were to secure a moderate degree of publicity in exchange for legalizing any reasonable combination, and to make possible a discrimination of trade. It was severely criticised for fiction between reasonable and unreasonable replacing so much discretionary power in the Commissioner of Corporations. It was also opposed on the ground that to attempt to distinguish reasonable and unreasonable restraints would emasculate the law by making it indefinite and uncertain and hence nugatory as a remedial measure.

Both leading political parties recommended changes in the anti-trust law. The Republicans declared in favor of greater publicity of corporate affairs and closer governmental supervision. The Democrats recommended a law preventing a duplication of directors among competing corporations, a plan for licensing interstate concerns, such license to forbid the control of more than one-half of any commodity used in the United States, and a law forbidding local competition. See *PRESIDENTIAL CAMPAIGN*.

BUREAU OF CORPORATIONS. During 1908 the Bureau of Corporations carried forward its investigations into the organization and business methods of the combinations in the powder, steel, tobacco, lumber, and petroleum industries and into the character of the International Harvester Company and the International Paper Company. Commenting on the results of the first five years' experience of the Bureau, Secretary of Commerce and Labor Oscar L. Straus stated that the Bureau's work had shown that "the greatest advance toward corporate reform must come through some general system of publicity." He

declared that to this end "a Federal constructive system for the positive supervision of interstate corporations" is badly needed. He said that the mere publication by the Bureau of improper business methods was sufficient in many cases to lead to their abandonment. He favored some plan of dealing with the trusts which should lead to their coöperation with the Government as against the present plan of court prosecutions which forces the trusts into opposition for self-defense. His plan as presented provided for a system of regular reports from all interstate corporations to the Bureau, and free access by the Bureau to the records of such corporations; for the publication of important facts as to corporate operations with a view of creating and maintaining an intelligent public opinion. The changed attitude of opinion toward combinations was shown in the report of Commissioner of Corporations Herbert Knox Smith, the keynote of whose opinion was that not destruction but regulation should be the official policy toward trusts.

PROSECUTIONS. The one successful suit prosecuted by Attorney-General Bonaparte under the Sherman Act, was that against the American Tobacco Company, known as the Tobacco Trust. This suit was begun on July 10, 1907, in the United States Circuit Court for the Southern District of New York, following an extensive inquiry into the business of the defendants by Henry W. Taft of New York City. The case was argued in May, 1908. A number of subsidiary companies were included in the complaint, among them the American Cigar Company, the American Stogie Company, and the McAndrews & Forbes Company. By the final decree of the Court, Dec. 15th, all of these companies were declared to constitute a combination in restraint of trade and were enjoined from engaging in interstate commerce in leaf-tobacco or its products until reasonable competition is restored among them. Furthermore these companies and the R. J. Reynolds Company, the Pierre Lorillard Company, the Blackwell's Durham Tobacco Company, and the Conley Foil Company were forbidden to vote any of the stock held by them in these or any of sixty subsidiary companies. The government's complaint against the Imperial Tobacco Company of Great Britain and Ireland, the British-American Tobacco Company, and the United Cigar Stores Company was dismissed, as was also the government's application for receiverships "to wind up" the business of the defendant companies. Both the government and the companies appealed to the Supreme Court; meanwhile a stay in the execution of the injunction order was granted. The case was notable for the intense bitterness of feeling shown between officials of the trust and independent companies, and for the volumes of testimony taken from witnesses all over the country.

Two suits were advanced against the so-called Anthracite Coal Trust. One of these begun in June, 1907, against the Reading Company and other anthracite coal-carrying roads as a combination in violation of the Sherman Act, was still pending at the close of the year. The other, begun in May, 1908, was based on the complaint that the roads were violating the commodities clause of the railroad rate law of June, 1906. This clause forbade any interstate common carrier to transport any commodity, other than timber, produced or mined by it, except articles necessary to the conduct of its business as a

carrier. On Sept. 10th the United States Circuit Court of the Third Circuit, in an opinion written by Justice George Gray, declared this clause unconstitutional. The Court held the clause to be arbitrary and despotic in nature, confiscatory and retroactive, and a plain violation of the fifth amendment to the Constitution which forbids deprivation of property without due legal process. As this case developed it became apparent that the clause in question though aimed at the anthracite coal railroads would affect also other producers, as the steel and oil industries. Another serious feature in the case was the fact that the state of industrial depression would have made it extremely difficult to dispose of the large holdings forbidden by the law. On Oct. 6th the government was granted an appeal to the Supreme Court.

The American Sugar Refining Company, popularly known as the Sugar Trust, was the defendant in several important suits of the year. The government brought seven suits for the recovery of customs duties, aggregating \$3,624,121, for the fraudulent weighing of sugar imported during the past six years. Evidence was being taken before Commissioner Shields in New York City in these suits at the close of the year. Special Agent Richard Parr, of the Treasury Department, testified that the company used fraudulent scales at its Brooklyn piers for the weighing of raw sugar, thus reducing the import duty. Parr stated that in the course of his investigations of the unloading and weighing of raw sugar, he discovered steel springs so inserted in the scale platforms as to interfere with proper weighing. The amount of such interference varied, but in seventeen sets of scales such devices were found, all giving results favorable to the company; without such devices the scales weighed true. Another suit against the trust was that brought by the Pennsylvania Sugar Refining Company under that section of the anti-trust law allowing three-fold damages for injury to business, due to the activities of an illegal combination. The plaintiff sought \$30,000,000 damages. Adolf Segal, of Philadelphia, held a controlling interest in the plaintiff corporation. He was induced, so the complaint alleged, to accept a loan of \$1,250,000 from the defendant on condition that the Pennsylvania company should not operate so long as the loan was outstanding, and on condition that his voting power in the company be turned over to the American Company. It was alleged that the latter took advantage of these conditions to prevent the plaintiff company, which was a new concern with expensively equipped plants, from starting up in business, thus being guilty of conspiracy to restrict competition and interstate commerce. This suit was dismissed by the United States Circuit Court in September, on the ground that the plaintiff had not begun business and shown capacity to make profits. But the Circuit Court of Appeals on Dec. 17th decreed that the Pennsylvania company had grounds for a suit.

In May Attorney-General Bonaparte began suit against the New York, New Haven, and Hartford Railway under the Sherman Act. The complaint charged a combination in restraint of trade and a monopoly within the meaning of the law. It alleged that this company had gradually extended its control over railway and steamship companies and trolley lines; that it now controls 500 out of 600 miles of trolley lines in Connecticut, 400 out of 500 in Rhode Island, and 600 in

all in Massachusetts; and that it owns 35 per cent. of the stock of the Boston and Maine Railroad, thus acquiring virtual control, since the remaining shares are widely scattered. The case had not advanced by the close of the year.

There were many other cases attracting considerable interest. The effort to compel the Consolidated Gas Company of New York City to obey the eighty-cent gas law passed by the Legislature in 1906 had not terminated at the end of the year. The case had reached the Supreme Court of the United States. The report of the Public Service Commission of the First District showed that this company supplied 70 per cent. of the gas and 76 per cent. of the electricity used in Greater New York in 1907. This company and its subsidiaries supplied twenty-five billion cubic feet of gas during that year. In the suit begun in 1907 against E. I. du Pont de Nemours & Company and others as a combination in restraint of trade in the manufacture and sale of gunpowder and other high explosives, a special examiner to take testimony was appointed in Sept., 1908. At the very close of the year the so-called Beef Trust was under grand jury investigation at Chicago with reference to violations of the anti-rebate law and the maintenance of tacit agreements for the fixing of prices and the division of territory in violation of the Sherman Act.

A number of the States carried on vigorous prosecutions against various combinations during the year. The States of Missouri and Texas were most zealous in such activities, but Kansas, Tennessee, Minnesota, Ohio, and others were also alert. Much of this enthusiasm for "trust-busting" on the part of State officials was due to the fact that such a policy was good politics. In Texas the Waters-Pierce Oil Company was fined \$1,623,900, and placed in the hands of a Federal receiver; the Harvester Trust was fined \$35,000 and ousted from the State; express companies were fined to the amount of \$40,000; the American Book Company was also fined; and numerous suits were pending. The Farmers' Union, however, which was clearly outlawed by the anti-trust statute, was regarded with increasing favor. See STANDARD OIL.

TRYPANOSOMIASIS. See SLEEPING SICKNESS.

TSI-AN. See TZE-HSI.

TUBERCULIN. This substance was extensively used during 1908 principally as a diagnostic agent, but to some extent for its curative value in tuberculosis. Its value in both roles was the subject of much inquiry and debate. As a curative medicine it is injected hypodermatically in minute doses, which are gradually increased according to its effects upon the patient. As a diagnostic agent tuberculin was used in three ways: 1. By injection, as above. 2. By vaccination; the Von Piquet method. The skin is rubbed with alcohol, then slightly scarified or punctured with a sharp needle, and a drop of tuberculin applied. When tuberculosis is present, in a few hours a reddened area appears around the seat of vaccination, reaching its maximum intensity in from 12 to 24 hours, a papule form, which with the hyperæmia may last several days or even weeks. 3. By dropping tuberculin into the eye—Calmette's reaction. A freshly prepared one-per-cent. solution of Koch's old tuberculin is used. A drop of this is placed in the corner of the eye, which when the reaction is positive, becomes the seat of an inflammation

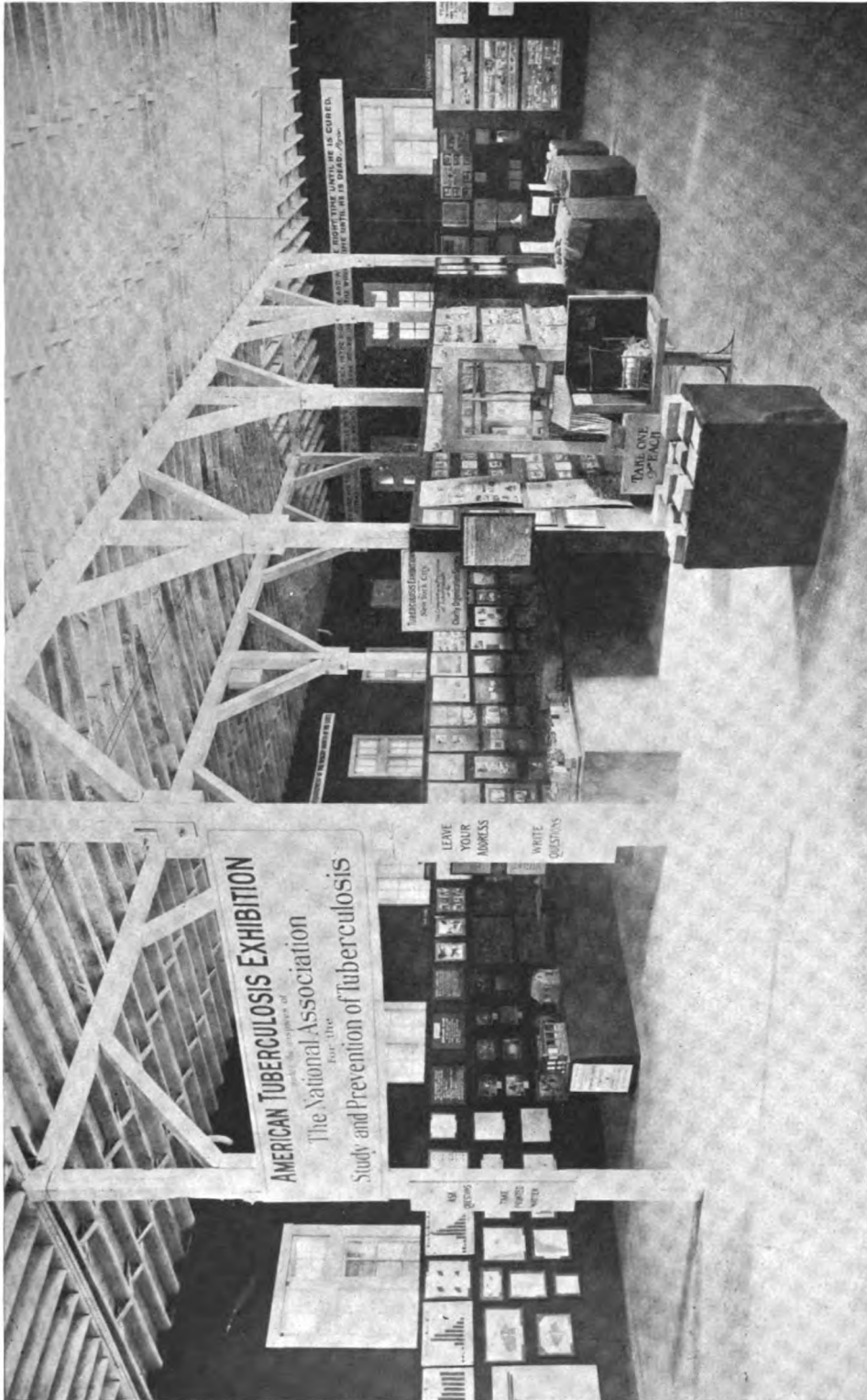
of varying degrees of severity and duration. The time of the appearance of the reaction is held to have considerable prognostic value. A marked reaction, appearing promptly, indicates a favorable prognosis, and the more severe the reaction the better the outlook for recovery. On the other hand a quickly occurring mild reaction, or failure to react, is looked upon as unfavorable. A delayed mild reaction indicates a healed or latent lesion. These principles, according to Wolff-Eisner, apply to both ocular and skin reactions. This author's theory of the mechanism of tuberculin reactions is as follows: Individuals with tuberculosis foci have at all times in their blood "bacteriolysins" for the tubercle bacillus. All tuberculins contain fragments of tubercle bacilli, and when these come into contact with the patient's bacteriolysins, endotoxins are set free from these fragments of bacilli which cause the phenomena of the reaction. Schrupf cited two cases in which instillation of tuberculin into the eye induced a severe, long continued inflammation which left permanent opacity of the cornea in one case. He cites further 23 authors who have published reports of disturbances following tuberculin instillation, ranging from intense conjunctivitis to keratitis, with or without involvement of the iris. Another disadvantage of the ocular reaction was that the eye was liable to become influenced again if a course of tuberculin treatment was instituted. These and many other reports in the United States, notably those of Rosenau and Anderson of the United States Marine Hospital Service, indicate that the substance must be used with extreme care. See TUBERCULOSIS.

TUBERCULOSIS. The most important single event in connection with this subject was the meeting of the International Tuberculosis Congress at Washington, D. C., from Sept. 21st to Oct. 12th, 1908. The congress was attended by nearly every well known authority on tuberculosis of this country and Europe. The presence of Koch, Arloing, Theobald Smith, Calmette, Trudeau, Rasenil, Fibiger, Adams, Sims, Woodhead, Eastwood, Courmont, and others stamped it as one of the most notable gatherings ever held. The meetings were characterized by a tone of optimism as to the complete control and ultimate eradication of the disease, although it is now known that every human being who has reached the age of thirty has or has had tuberculous infection in some part of the body, and presents definite traces of the disease in his tissues. The congress discussed every phase of the problem—ventilation, factory inspection, tenement house reforms, the prevention of expectoration, sanitation, and the segregation of the tuberculous patient. The question of infection of human beings through tuberculosis milk was perhaps the most important before the congress, and on this no definite agreement was reached. Dr. Koch stated his belief that eleven-twelfths of all tuberculosis and practically all pulmonary infection in the human race comes from human sources. He reiterated his statement made at the London Congress in 1901 that the bovine type of tuberculosis is different from the human type. (This decision was first made by Theobald Smith, of Washington, in 1898.) Koch added that infection from tuberculosis cattle was comparatively rare; that a herd of tuberculous cattle was less dangerous to the community than a badly ventilated tenement house in a large

city. These views were diametrically opposed to those of the majority of the membership of the congress, and this lack of harmony was regarded as unfortunate because of its possible effect on the campaign against infected dairies and in view of the fact, that the transmissibility of bovine tuberculosis to man is settled from a scientific standpoint. The exhibits at the congress constituted the greatest anti-tuberculosis exhibition ever assembled, and attracted wide attention. England, Germany, Sweden, France and other European countries, and many of the United States were represented, as well as practically all the large sanitariums in this country. At the conclusion of the congress the exhibition was brought to New York City, where at the Museum of Natural History many thousands flocked to view it. A series of public meetings was held in connection with the exhibition and every effort put forth to make the occasion one of popular education. Dr. Darlington, Health Commissioner of New York City, stated in opening the exhibition that since the Health Department began its crusade against spitting, and has removed advanced cases of tuberculosis to hospitals, furnished sputum cups, and enforced disinfection of rooms vacated by tuberculosis patients, the death rate from this disease among children under fifteen had fallen from 7.1 to 2.6 per ten thousand of the population. Mayor McClellan announced that there were at present about 3,500 beds available for tuberculous patients in New York City, and buildings were planned or were being constructed that would accommodate 1,500 more. Eventually there would be room for 6,000 patients.

Tuberculosis in Ireland was reported on the increase of late years and attracted serious attention in 1908. The death rate in that country is alarmingly high, 15.8 of all deaths being due to consumption. A peculiar feature is that the victims are for the most part adult wage-earners, and not, as in other parts of the United Kingdom young children. The cause for this is found in the poor sanitary organization in Ireland, most of the sanitary work being in the hands of the poor law medical officers, who are paid meager salaries and are not expected to look after public sanitation. In Sweden, on the other hand, vigorous measures have been taken against the spread of tuberculosis since 1896, which may serve as a model for other countries. The two main features of the campaign were: First, the establishment of an adequate number of sanatoria in all parts of the country. To this work King Oscar II. gave the jubilee fund, amounting to \$583,000. Second, the organization of the National Anti-tuberculosis Society, whose efforts are directed to popular education. This society has a membership of 22,000. Lectures on tuberculosis are given. A museum was established in Stockholm, and pamphlets, newspapers, and other literature distributed. With these and other measures in vogue the mortality is steadily diminishing. In Germany similar efforts on a scale commensurate with the size of the country have been made. In addition forest schools and sanatoria have been established where delicate children and adults can spend the day in the open air, returning to their urban homes at night. In twenty years the mortality in Prussia alone had been reduced by 13.88 per thousand of population. See VETERINARY SCIENCE.

TUNIS. A French protectorate in North Africa. Area, about 64,600 square miles; popu-



A TUBERCULOSIS EXHIBIT
HOW THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS
HAS AROUSED WIDE POPULAR INTEREST IN THIS DISEASE

lation, about 1,830,000. The natives are estimated at 1,700,000, mostly Arabs and Kabyles, with 80,000 Jews. On Dec. 16th, 1906, there were 128,895 Europeans (34,610 French, 81,156 Italians, 10,330 Maltese). Tunis, the capital, has about 200,000 inhabitants, including 61,000 Europeans. The natives, excepting the Jews, are nearly all Mohammedans, with about 400 adherents of the Greek Church. The Europeans are mostly Catholics. The Mohammedans have some 1,400 primary schools, some of them assisted by the government, and a university in the Great Mosque at Tunis. The Mohammedan religious, charitable, and educational institutions are maintained from the income derived from "Habus" lands. The French schools include a lyceum for boys and another for girls, two colleges, a technical school, about 150 government primary schools, and a number of private schools. Congregational teaching is prohibited as regards French children. The Italian government and Italian societies maintain schools in the larger towns.

PRODUCTION. In 1907 the production of wheat was estimated at 6,000,000 bushels; oats, 2,000,000 bushels; wine, 7,920,000 gallons; olive oil, 27,000 metric tons. Other products are barley, dates, almonds, pistachios, oranges, lemons, alfa grass, and cork. The number of olive trees in 1907 was estimated at 11,222,225. The most important olive district is the country about Sfax. About 200,000 acres have been sold by the government with the obligation on the part of the purchaser to plant olive trees. Two-thirds of the oil comes from very primitive native mills. There are about 150 European mills, but owing to the lack of fresh water in many districts, only 50 are worked by steam. The largest mill, in the city of Tunis, has an annual capacity of 6,600,000 pounds of oil, and the soap factory attached to it turns out 1,800,000 pounds of soap. Date palms number about 1,350,000. The cork forests of the north-west cover 202,600 acres. On Dec. 31st, 1902, there were 200,200 cattle, 20,240 horses, 108,094 asses and mules, 146,899 camels, 719,610 sheep, 509,428 goats, and 7,825 swine. The development of mineral wealth within recent years has been very notable. Large deposits of phosphates exist near Gafsa and the surrounding region, and at Ain Moulares, to the west of Gafsa. About one-eighth of the world's supply of phosphates is now derived from Tunis, the deposits of which are said to be practically inexhaustible. In 1906 there were exported 751,421 tons of phosphates, 1,041 tons of copper ore, and 21,602 tons of lead ore. Iron has been found near Kef, and 5 iron mines are being worked. Manganese has been found in large quantities in the south, between Gafsa and Gabes. Prospecting is going on in the desert country in the extreme south, which, in the opinion of geologists, is rich in mineral-bearing formations. The fisheries, worked by Italians, Maltese, and Greeks, yield sardines, anchovies, allaches, tunny fish, etc. The total value of the catch in 1906 was 3,182,000 francs, exclusive of sponges.

COMMERCE AND COMMUNICATIONS. The imports and exports in 1907 were valued at 102,860,000 and 103,361,000 francs, respectively, against 89,349,000 and 80,595,000 in 1906. The principal imports are flour, hardware, machinery, and textiles. The principal exports in 1906 were: Phosphates, 18,758,000 francs; bar-

ley, 9,360,000; olive oil, 6,972,000; wheat, 3,654,000; alfa, 3,071,000; animals, 2,946,000; sponges, 2,129,000; tanning bark, 1,345,000; wine, 565,000. The distribution of the trade in 1907 among the principal countries of origin and destination, was as follows, in francs:

From and to	Imports	Exports
France	62,032,000	61,240,000
Algeria	6,870,000	5,524,000
Great Britain	9,781,000	15,296,000
Germany	2,054,000	2,424,000
Belgium	2,291,000	3,692,000
Italy	6,108,000	17,346,000
United States	3,101,000	118,000

In 1906 the ports were entered by 13,416 ships of 3,566,661 tons (1,683,813 French). The railways in 1907 had a length of 718 miles; telegraph lines in 1906, 2,392 miles.

GOVERNMENT AND FINANCE. The nominal ruler is the Bey. The present Bey is Sidi Mohammed En Nasser, who succeeded his cousin May 12th, 1908. The real ruler is the French Resident-General, who is also Minister of Foreign Affairs, and acts under the direction of the French Foreign Office. He is assisted by 7 French and 2 native ministers. The French garrison numbers over 20,000, the cost being borne by France. The Bey's native bodyguard is about 600 strong. The country is divided into 13 civil districts, 2 military districts, and 1 military post. The district governors (contrôleurs) are French; the subordinate officials (Kuids and Sheiks) are natives. Justice between Europeans, and between Europeans and natives is administered by French courts; cases between natives are tried by native courts. The budget for 1907 estimated the revenue at 39,342,133, and the expenditure at 67,662,952 francs. At the end of 1906 the Tunisian debt amounted to 232,181,500 francs. In 1907 the government was authorized to contract a loan of 75,000,000 francs for roads, railways, and colonization.

TUNNELS. The two-track subway tunnel of the city of Philadelphia was opened for inspection on July 30th, 1908, and the first train was run through on Aug. 3d. This formed an addition to the elevated railway, which extends on Market street, from the Schuylkill River to 69th street, continuing the line from the river, and extending it eastward, down Market street, and around the City Hall to the Delaware River, a distance of two miles. It was also proposed in connection with the Philadelphia transportation problem to build two single tubes beneath the Delaware River for street railway passenger traffic only, to connect Market street, Philadelphia, and Third street, Camden. A street railway tunnel, one mile long, was opened in 1908 in Genoa, Italy, which connects that city with the town of Rivarolo, and thus reduces the distance by 1 1-3 miles; the road going through the hill, rather than around it. Twenty-five men were killed in an accident in the Loetschberg Tunnel in the Alps on July 25th, 1908, while at work in the north heading, due to a section of rock being forced out of place without warning. Two hundred thousand dollars was appropriated for the electrification of the tunnel between Spieze and Frutigen, at the northern approach, the current for which will be obtained from the Kander & Hagneck hydraulic plant at Spieze. The maxi-

mum grade will be 2.7 per cent., and passenger trains of 250 tons will be run at 25 miles per hour, while freight trains of 300 tons will be run at 18 miles per hour. During the month of April, 1908, the rate of progress approached within 5 per cent. of that established in the Simplon Tunnel, where the record of 685 1-2 feet advance on a single heading, in one month, was made. In the Loetschberg Tunnel 656 feet were driven in the north heading.

HUDSON TUNNELS. The Hudson Company's upper line under the Hudson River, between Jersey City and Manhattan, was opened the first time for traffic on Feb. 1st, 1908. The Cortlandt street tunnels of the same company were nearing completion and promised to be opened during the year 1909.

SANTA BARBARA TUNNEL. This California city was undertaking to build a tunnel through the mountains, which, when complete, will be 19,560 feet long, and has for its purpose the delivery of water to the city. In 1908 \$200,000 had been spent on the project, and it was at the end of the year about half finished. During the driving of the heading an underground flow of water was tapped which gives 75 miners' inches, and it is expected that a further flow will be developed in the progress of the work, enough to supply the entire city. It is proposed to use the tunnel for a pipe line leading from the storage reservoir on the Santa Ynez River.

THE DETROIT RIVER TUNNEL, which consists of two twin tubes, was partially damaged by fire, in which two men lost their lives, on Sept. 15th, 1908, in the Canadian approach. The fire, starting in the air lock of the west-bound tunnel about 1,400 feet back of the shield, did little damage, and was easily extinguished. The land approaches at the end of the year required considerable work upon them before they would be completed, but five of the ten river sections had been put in place.

THE WASHINGTON STREET TUNNEL in Boston, Mass., was opened for official inspection on Nov. 23d, 1908. It is about two miles long, and in general passes through the business section of the city, parallel to the Tremont street subway. Its use will be devoted chiefly to the elevated railway trains, so that the Tremont street subway may be used for surface cars, as originally planned. Great difficulty was involved in its construction, due to the narrowness of the streets and the tall buildings adjacent.

THE BROOKLYN EXTENSION of the New York subway tunnel was opened from Borough Hall to Atlantic avenue, Brooklyn, on May 1st, this addition thus completing the original contract No. 2, which was known as the Brooklyn extension. The entire contract included about one mile of tunnel in Manhattan, south of the City Hall to the Battery, with a double track loop at the latter place, and extended thence east, by means of two tubes, to Joralemon street, Brooklyn, which it follows to Fulton street, and thence out Flatbush avenue to Atlantic avenue. It was proposed in Brooklyn to construct another subway tunnel, to extend from the east end of the Manhattan Bridge, under Fourth avenue to 43rd street, and the contracts for its execution were let on May 22d, 1908. It will be about 3 1-2 miles long, and will cost about \$16,000,000, of which one million will be

used for pipe galleries. A second rapid transit subway tunnel has been authorized in Manhattan, which will extend up Broadway and Lexington avenue to the Bronx, and have two branches to run east and west in the latter borough.

RICKEN TUNNEL. The progress of 531 feet in the Ricken Tunnel during the month of March, 1908, was entirely in the south heading and not only exceeded any other month's advance for that undertaking, but established a new record which is 70 feet in excess of former values where land drilling had been employed. As a matter of comparison, it may be stated that the world's record, made in the Simplon, where machine drills were used, was 685 1/4 feet. Located in the Canton St. Gallen in northeast Switzerland, the line, which is 28,221 feet long between portals, extends from Uznach to Wattwil, and appreciably shortens the north-south routes in eastern Switzerland. Except for a short length of masonry lining that must be placed, the tunnel was finished, but considerable trouble was occasioned by the presence of fire damp, which at one stage of the operations stopped the progress for months at a time. To dispose of the gas, 4-inch vent tubes were built into the masonry lining, but the gas, becoming ignited and striking back through the vents, began to burn behind the masonry. No damage had resulted from it as yet, and it was expected that the flow would soon cease, but soft ground has caused some annoyance, having crowded in the sides for a distance of 200 feet and in some places to the extent of 12 inches.

THE ROTHERHITHE TUNNEL under the River Thames at London, was formally opened by the Prince of Wales on June 13th, 1908. It is 6,883 feet in length, of which 3,698 feet is cast iron tunnel, and connects Ratcliff with Rotherhithe.

PENNSYLVANIA TUNNELS. The four tubes of the Pennsylvania Railroad tunnels under the East River, between Manhattan and Long Island City, at the end of the year were reaching a condition where soon they could be concreted for their entire length, cleaned out, and put in readiness to be turned over to the Pennsylvania Railroad for the laying of roadbed, track and installation of electrical equipment for operation. Rapid progress was made upon the tunnels under Manhattan also. Two of the tunnel outlets in the railroad yard in Long Island City were finished, together with a concreted roadbed running for several hundred feet from the entrance to the tunnels. The work of building the connecting links between the completed East River tubes and the terminal points in the railroad yards was also nearing completion. In addition to the viaducts built over the yard for the purpose of carrying street traffic, the work of raising Jackson avenue at the Sunnyside section of Long Island City several feet above the present grade was about half completed. This change of grade will not only facilitate the approach to the plaza of the Queensboro Bridge, but it will also enable the Pennsylvania Railroad to fill in a wide stretch of swamp ground, otherwise without value, except at great cost for drainage.

In the Bergen Hill tunnels the headings of the south tube were joined April 11th, while those in the north tube were holed May 7th. These two tunnels were the last part of the New York and Long Island extension of the Pennsylvania Railroad, and by their completion passage from the west portal at Bergen Hill to the Long Island yard was made possible.

The terminal station work was almost finished, the excavation and the retaining wall around the site being complete and most of the masonry and steel work in place. To this point already \$70,000,000 had been spent by the Pennsylvania Railroad on this New York extension, but it was estimated that \$20,000,000 more would be required before it was completed sometime in 1910. Throughout the terminal zone, which extends from Newark to Long Island City, a third rail direct current system will be used for operating trains. A protected third rail is to carry a current of 600 volts, while the transmission from a central power station in Long Island City to substations, will be made with 11,000 volt, 25 cycle, 3 phase alternating current.

TURFAN. A ruined city of Chinese Turkestan, especially noteworthy for its archaeological remains and for the literary and linguistic fragments discovered there. In 1908 four fragments from this site had been made accessible, and the work of decipherment is constantly being carried on by the Prussian Academy of Sciences. Of the new material by far the most valuable is the discovery of an Indo-Scythic language. (See **INDO-SCYTHIC LANGUAGE**.) Next in interest stands the finding of fragments of a Sanskrit recension of the *Dhammapada*, a Buddhistic work hitherto known only in Pali and in Tibetan and Chinese translations. These Sanskrit fragments are sufficient to show that the Tibetan (and Chinese) version was made from a Sanskrit, not a Pali, original. Of less general interest is the discovery of fragments of a Sanskrit grammar on paper, dating from the ninth or tenth century A. D., of which additional parts have been edited during 1908. Our scanty knowledge of the original sources of Manichæanism, as well as of Uiguric (old Turkish) is advanced by a brief fragment of twenty-six lines, giving a version, apparently, of the temptation of the Iranian reformer Zoroaster by the Evil One (recorded in the Avesta *Vendidad*, xix.), combined with the Iranian tradition which located the demoniac Azhi Dahaka at Babylon (cf. the Avestan *Yasht* v., 29). Consult *Sitzungsberichte der königlich preussischen Akademie der Wissenschaften* for 1908.

TURKEY. An empire in Europe, Asia, and Africa. Exclusive of Bulgaria (q. v.), which declared itself independent in 1908; Bosnia and Herzegovina (q. v.), administered by Austria since 1878 and annexed in 1908; and the nominal or autonomous dependencies of Crete (q. v.), Cyprus (q. v.), Egypt (q. v.), and Samos (q. v.), the area and population are estimated as follows:

	Area sq. miles	Popula- tion
In Europe	65,367	6,130,000
In Asia:		
Asia Minor	193,600	9,080,000
Armenia and Kurdistan	72,000	2,471,000
Syria	114,600	2,880,000
Mesopotamia	131,700	1,308,000
Arabia	170,300	1,060,000
Total in Asia	682,200	16,898,000
In Africa:		
Tripoli and Benghazi	405,800	1,000,000
Total	1,153,300	24,028,000

The principal cities, with their estimated populations, are: Constantinople, 943,000 (in-

cluding suburbs in Asia, 1,106,000); Salonica, 105,000; Adrianople, 81,000; Smyrna, 201,000; Bagdad, 145,000; Damascus, 140,000; Aleppo, 127,000; Beirut, 119,000; Brussa, 76,000; Kaisarieh, 72,000; Kербela, 65,000; Mosul, 61,000; Mecca, 60,000; Homs, 60,000; Sanaa, 58,000; Urfa, 55,000; Marach, 52,000; Jerusalem, 80,000; Medina, 48,000.

RELIGION. In European Turkey the Mohammedans and Christians are about equally divided, and there are numerous Jews. In the Aegean islands nine-tenths of the population are Christians. In Asiatic Turkey the Mohammedans constitute a majority. In Asia Minor the number of Christians is estimated to be 1,548,500; in Armenia, 646,000; in the vilayet of Aleppo, 183,000; in the vilayet of Beirut, 166,500; in the Lebanon, 319,300. There are very few Christians in Mesopotamia, Arabia, and Turkish Africa.

EDUCATION. The ministry of public instruction is divided into four departments, which supervise, respectively, the primary schools, the higher primary schools, preparatory schools, and the schools of the non-Mussulman and foreign communities. The grand council of the ministry of public instruction controls the school revenues and expenditures and supervises the law school, the college of fine arts, colleges for civil servants, commercial colleges, meteorological observatories, the imperial museum, and the deaf and dumb institution. The school revenues are derived from one-half of 1 per cent. of the tithes on agricultural produce, 5 per cent. of the real estate taxes, and one-third of the poor rate. Instruction in government schools is free, whether for Turkish or foreign subjects. The schools of the non-Mussulman and foreign communities are supported by their respective communities.

In each province there is a council for the supervision of the schools, under the presidency of a Mussulman and a non-Mussulman. In every village there is, by law, a primary school at which attendance is obligatory for all Mussulmans. Boys have to go to school from 6 to 11 years of age, and girls from 7 to 11. The course of instruction covers four years and includes reading, writing, history, the Turkish language, elementary geography, and religious instruction, according to the creed of the pupil. In towns of over 500 houses there is a higher primary school with a four years' course and instruction in Turkish grammar, letter writing, Persian and Arabic grammar, arithmetic, book-keeping, geometry, history, drawing, and one of the languages spoken in the district. In all towns having over 1,000 houses there are preparatory colleges, or high schools, with a two years' course and instruction in Turkish literature, French, rhetoric, political economy, geography, general history, natural history, arithmetic, algebra, geometry, surveying, physics, chemistry, and drawing.

The above account of the Turkish system of education is based on a report by United States Consul Ernest L. Harris of Smyrna, published in 1908. According to other reports, the instruction in the primary schools is by the Mussulman clergy, and of little value. The total number of the various schools in the empire is over 36,000, with 1,330,000 pupils. At Constantinople there are a government school of medicine, an imperial art school, the Greek Na-

tional School, with 400 students, and a Greek theological seminary, with 80 students. At Damascus there is a government medical school. The American college in Beirut, with collegiate, commercial, and medical courses, and 850 students (200 Mohammedans), is the greatest educational centre in Asiatic Turkey. At Smyrna there was established a commercial school about the year 1906. In 1908 it was reported that the course of instruction was to be extended, so as to include the Turkish, English, French, and German languages, besides the subjects usually taught in European commercial schools.

FORESTS. About 21,000,000 acres are under forest, of which 3,500,000 are in European Turkey. In Asia Minor the magnificent natural forests were largely cut down for firewood and to provide pasture for the numerous goats. The latter, in their turn, destroyed the new shoots which might have replaced the trees that were cut down. Nevertheless, the forests which cover the interior mountain ranges are still counted among the chief natural riches of the country. In the vilayet of Smyrna, there are 1,600,000 acres of valuable woodland, consisting chiefly of larch, oak, boxwood, pine, cypress and cedar. In the vilayet of Adana, there are 1,200,000 acres of forest, and there is a considerable export of timber, tar, and resin through the port of Mersina. In the vilayet of Trebizond about 1,400,000 acres of forest land have been destroyed by the charcoal makers, much to the detriment of the soil and climate. In the vilayet of Konieh 944,000 acres are under forest.

AGRICULTURE, ETC. The production of wheat in Asiatic Turkey in 1907 was estimated at 35,000,000 bushels. The olive crop of 1908 was far below the average, and the output of olive oil was estimated at 50,000 tons—about 70,000 to 75,000 tons below the average. The principal centres of olive production are Asia Minor and the islands of the archipelago. In 1906-07 there were 100,640 wine growers and 118,615 distillers; the output of wine was 61,956,407 kilos, and of spirits, 8,609,457 kilos. In the same year the beer production was 6,466,342 kilos. The production of tobacco in 1907 was about 2,000,000 kilos. The manufacture of tobacco and cigarettes is a monopoly of the Regie, which pays \$3,300,000 annually to the Ottoman public debt administration. The company pays further, after deducting 8 per cent. on the share capital and 5 per cent. on founders' shares, 30 per cent. of the remaining net profits to the government and 35 per cent. to the public debt administration, distributing the remaining 35 per cent. among the shareholders. The total sales of the Regie in 1905-06 amounted to 16,605,000 pounds of tobacco. The Regie must purchase all the inferior tobacco, which is consumed in the country. As regards the best qualities of tobacco, the Regie comes in competition with the exporters. In 1905-06 the Regie purchased in the great centres of high-grade tobacco—Cavalla, Salonica, Samsoun, Smyrna and Xanthi—5,885,000 pounds of tobacco, and the exporters 46,118,600 pounds. Retailers receive a 5 per cent. commission from the Regie. Nargileh tobacco is controlled by a similar but smaller company. The present concession to the Regie comes to an end by 1914. The production of opium varies considerably from year to year; in 1904 it was 11,000 cases, in 1906, 7,250; in 1907, 2,375, and was estimated for 1908 at 4,800 cases. Nearly the entire pro-

duction is exported. The production of attar of roses in 1907 was 2,100 kilos. Cotton is grown throughout Asia Minor, especially in Anatolia, in the southwest, and Cilicia, in the southeast. The greatest production is in the districts of Aidin, Kassaba and Adana. These districts are well watered, and the climate and soil are suited to cotton cultivation. Goats are very numerous in Asia Minor, particularly in the interior highlands. The Angora goat abounds chiefly in Anatolia. The total number of goats is about 3,000,000, and the value of the mohair annually produced is placed at nearly \$4,000,000. The weaving industry of Angora, formerly very extensive, has succumbed to European factory competition. But shawls and robes are still produced in large quantities and are much prized on account of their durability and originality of design. The export of eggs, through Smyrna, increased from 1,132,125 eggs in the three years 1900-1902 to 24,322,374 in 1907.

IRRIGATION PLANS. On Nov. 24th, 1907, an agreement was signed between the Anatolian Railway Company, a German corporation, and the Turkish government, for irrigating about 132,500 acres in the plain of Konieh, in the centre of Asia Minor. The utilization of the waters of Lake Bey Chehir, covering 24,300 acres, forms an important part of the plan. The funds, amounting to about \$4,000,000, will be advanced by the company, which undertook to carry out the work in five years. When completed the works are to be taken over and operated by the government. The scheme is primarily intended to secure the growth of cereals, but it will undoubtedly lead to a considerable production of cotton, which may be grown as a rotation crop. The engineers employed by the corporation are Dutch.

Sir William Willcocks, who built the Assouan dam in Egypt, was engaged by the Turkish government to survey and prepare plans for irrigating the plain of Mesopotamia. A party of four engineers, the vanguard of this expedition, arrived in Bagdad in the latter part of 1908. The survey is expected to occupy three years. Preliminary estimates of the expenditure required reach the sum of \$37,000,000, and the estimated annual profit on this outlay is from 16 to 19 per cent.

Other regions greatly in need of irrigation are Cilicia, in Asia Minor, the valley of the Orontes, in Syria, and the valley of the Jordan.

MINERALS. The mineral wealth of Asia Minor is proverbial. On the shores of the Black Sea the coal fields of Heraclea extend for nearly 40 miles, and run inland for a distance of 200 miles, coming to an apex at Angora. The coal is in thick seams, but contains many impurities. There is only one company with a washing and screening plant, and the output is therefore limited to some 600,000 tons a year. At Surmene, in the vilayet of Trebizond, there are rich copper deposits; in 1908 it was reported that German and Austrian capitalists were negotiating for the purchase of these ore lands. Valuable ores are also found in other parts of the province, and the owners were reported as eager to sell their lands to Europeans. Extensive deposits of mineral oil and bitumen are reported in the district of Alexandretta, as well as in Mesopotamia. The vilayet of Aleppo, in Syria, and the valley of the Jordan, from the river's source to the Red Sea, also contain bituminous deposits. The world's supply of emery stone is derived mainly from the district

of Smyrna and the island of Naxos. Large quantities of salt are obtained from the salt mines at Salif, in the Yemen, and there are salt works at Aleppo, Erzeroum and elsewhere. Other minerals are worked to a small extent.

COMMERCE. The internal trade is greatly hampered by customs dues for the exportation of produce from one province to another. In the foreign trade there is levied a fixed *ad valorem* duty on all imports, which was increased in 1906, with the consent of the Powers, from 8 to 11 per cent. The new duty came into force on July 12th, 1907. There are also export duties. For the year ending Feb. 28th, 1906, the last year for which trade statistics are available, imports amounted to 3,136,602,000 piasters, and exports, 1,967,236,000 piasters (1 piaster equals 4.4 cents). The principal imports were, in millions of piasters: Cotton piece goods, 409; sugar, 264.; cereals and flour, 156; cloth, 150; yarn and thread, 147; woollens, 130; rice, 108; kerosene oil, 104; coffee, 95; cassimere, 64; rugs and carpets, 57; iron manufactures, 55; iron, 49; paper, 39; timber, 39. The principal articles of export were, in millions of piasters: Raw silk and cocoons, 293; raisins, 235; cereals and flour, 188; mohair, 91; figs, 90; coffee, 89; opium, 73; hides and leather, 73; valonia, 62; beans and peas, 58; minerals, 55; fruits, 55; carpets, 54; cotton, 51; wool, 50; eggs, 50; olive oil, 42; dates, 34; sesame, 31. The trade with the principal countries of import and export was as follows, in piasters:

From and to	Imports	Exports
Great Britain	1,099,180,000	633,008,000
France	266,884,000	481,080,000
Belgium	98,615,000	48,791,000
Netherlands	58,748,000	58,104,000
Germany	132,528,000	122,768,000
Austria-Hungary	651,614,000	213,730,000
Italy	244,620,000	99,595,000
Greece	56,062,000	54,358,000
Bulgaria	46,708,000	75,597,000
Roumania	79,530,000	40,000,000
Russia	182,016,000	59,384,000
Persia	73,375,000	6,548,000
Egypt	92,621,000	.....
United States	28,756,000	49,212,000

According to United States returns, imports from Turkey during the fiscal year 1907-08 amounted to \$10,761,184, and exports to Turkey \$1,976,500. According to a British consular report, the imports of the Benghazi district, Northern Africa, in 1907 amounted to £257,000 (£38,940 from Great Britain), and the exports £467,000 (£162,600 to Great Britain).

In Sept., 1908, it was reported that the censorship in the custom houses was abolished, so that books and newspapers and printed matter generally can now enter the country freely. The importation of electric appliances, telephones and pharmaceutical substances, formerly prohibited, is now permitted.

NAVIGATION AND SHIPPING. In 1905-06 the ports of Turkey were entered and cleared by 47,265 steamers, of 44,257,892 tons, and 129,796 sailing vessels, of 2,293,977 tons. Constantinople was entered in 1906 by 15,887 vessels, of 15,678,903 tons. The Germans have established a line of the largest and fastest steamers between Smyrna, Genoa and Marseilles, and in Oct., 1908, the North German Lloyd secured a through passenger train service from Hamburg direct to Genoa to meet the steamers from and to Smyrna.

INTERNAL COMMUNICATIONS. The railways in exploitation in 1907 had a total length of 3763 miles, of which 1238 miles were in Europe, 1474 in Asia Minor, and 1050 in Syria and Arabia. The total length of telegraph lines in 1906 was 28,890 miles.

The Smyrna-Aidin Railway is now the only line in Asia Minor still controlled by a British corporation. This line extends for 200 miles into the interior from Smyrna, and with its branches has a length of over 320 miles. In 1908, a 40-mile extension was being constructed from the end of the line to Lake Egidir, one of the largest inland seas in the southern part of Asia Minor. This is the only railway in Asia Minor which receives no kilometric guaranty from the Turkish government. The annual dividend during the past five years has averaged 6 per cent.

All other lines originally constructed in Asia Minor, whether with British or French capital, have passed under German control. The Bagdad Railway, a prolongation of the Anatolian Railway from Konieh through Asia Minor, is destined to reach the Persian Gulf through Mesopotamia. The first section of 125 miles, from Konieh to Eregli, was opened in Oct., 1904. There the work of construction came to a halt, owing to a lack of funds to provide for the kilometric guaranty. On May 23, 1908, a convention was signed at Constantinople between the Porte and the Bagdad Railway Company for the construction of the section from Eregli to Eli, near Mardin, some 60 miles southeast of Diarbekir, with a branch line from Tel-Abesk to Aleppo, a total of 542 miles. Plans must be prepared within a year from the signing of the convention. The line is to be completed in 7 years. The greatest difficulties will be encountered in the first two sections, in crossing the Taurus Mountains. The total cost is estimated at \$45,000,000. The branch to Aleppo will make it possible to go direct by rail from Constantinople (Haidar Pasha) to Mecca by the route Haidar Pasha-Konieh-Aleppo-Damascus.

The Damascus-Mecca line, 1093 miles long, reached Maan, 373 miles from Damascus, in Sept., 1905; Alakhzar, 463 miles, in Feb., 1907; Tebuk, 560 miles, in May, 1907; and on Sept. 1, 1908, the line was opened to Medina, 807 miles distant. It was reported that from Medina the line would probably be extended to Mecca by way of Rabigh and Jeddah—a route free from engineering difficulties and well supplied with water, whereas the eastern or highland route from Medina to Mecca lacks water. Rabigh is a town of about 3000 inhabitants, 3 miles from the sea and about 70 miles to the north of Jeddah.

For the proposed extension by Austria-Hungary of the railway from Uvac, on the Bosnian frontier, through the sanjak of Novibazar, to Mitrovitza (whence there is a direct line to Uskub and Salonica), see below, *History*; also **MACEDONIA**.

Early in 1907 an electric street car system was established in Damascus, which was also the first city in the empire to have electric lights. The electric tramway in Beirut was expected to be opened by the beginning of 1909. Both of these electric traction systems, the first in the empire, were constructed with French, Belgian, and native capital. Concessions for electric

traction and lighting have also been granted for Aleppo, Smyrna, and Salonica.

BANKS. The Imperial Ottoman Bank, with a capital of £T11,000,000 (1 Turkish lira, or 1£T = \$4.40), had on Oct. 31, 1907, a note circulation of £T1,313,100, and cash on hand amounting to £T2,567,100. At the end of 1908 it was reported that a new national bank was to be established, for which a large building was being constructed in Constantinople, where the head office is to be. The chief feature of the bank is to be the advancing of money on land, taking mortgages as security. The borrower is to be enabled to repay in annuities, so calculated that at the end of the appointed time the capital is repaid with interest. The initial capital of the bank is to be \$15,000,000, with the right to increase the amount to \$50,000,000. Of the 300,000 shares proposed, only Ottoman subjects will be allowed to own as many as 30,000. Every Ottoman subject purchasing 30 shares of \$50 each will be considered a founder. The initial capital of the Land Mortgage Department (*credit foncier*) is also to be \$15,000,000, which may be increased to \$100,000,000. The duration of the concession is 99 years. The interest on the money loaned on land security is to be below the legal rate in Turkey, which is 9 per cent. The sums loaned are to be repayable at the maximum in 50 years. Branches will probably be established in all the large cities of the empire. The national bank will not infringe on the privileges of the Ottoman Bank.

GOVERNMENT. The constitution of 1876, suspended in 1878, was restored on July 24, 1908 (see below, *History*). This constitution provides for a parliament consisting of a senate and a chamber of deputies. Senators are appointed by the Sultan, and their number must not exceed one-third that of the deputies. The latter are elected indirectly for a term of four years, one to every 50,000 male citizens. The president and vice-president of the chamber are appointed by the Sultan from lists submitted to the chamber. Parliament meets annually from Nov. 1 to Mar. 1, but the Sultan may extend the session. Bills originate with the council of ministers, but either house may demand the introduction of legislation, and it rests with the Sultan to order or to deny compliance with the demand. Laws require the consent of both houses and the Sultan. The Sultan appoints and dismisses ministers, concludes treaties, declares war, has control of the army and navy, and may dissolve the chamber of deputies, in which case an election must follow within six months. Liberty of the individual, equality before the law, freedom of the press and education are guaranteed. Mohammedanism is the state religion, but all religions are tolerated, and the existing privileges of various religious communities are guaranteed. Judges cannot be removed, except according to law.

In Sept., 1908, the Young Turk Committee announced that the constitution would be modified in a democratic sense. Two-thirds of the Senate would be made elective. Private bills would be introduced if supported by ten deputies. Every Ottoman citizen over 20 would have the right to vote. The Parliament, which met on Dec. 17, 1908, was elected by kazas, or districts, the electors having been chosen in nahies, or sub-districts, one elector to every 500 voters. The tendency in the Parliament

has been to subject the ministry to itself.

For administrative purposes the empire is divided into *vilayets*, under valis, or governors-general, assisted by provincial councils; the vilayets are subdivided into *sanjaks* and *kazas*, and the latter are further subdivided into *nahies*. The subdivisions of vilayets are under mutesarifs, kaimakams, mudirs, and muktars. Valis and the mutesarifs of six of the sanjaks (which are therefore known as mutesarifats) are directly responsible to the Minister of the Interior. The Lebanon has a special government presided over by a Christian mutesarif. The vilayets of Macedonia (Kosovo, Monastir, and Salonica) were given, by the agreements of 1903, 1904, and 1907 with Russia and Austria-Hungary, a special gendarmerie, commanded by an Italian general officer, who was assisted by officers of all the other European powers, except Germany. A Russian and an Austrian civil official assisted the Turkish inspector-general. A system of international financial control was established in 1905. In 1908 the country was still in a disturbed condition, but the restoration of the constitution brought order into the chaos of rival race ambitions, and in October the Powers withdrew their gendarmerie officers. (See MACEDONIA.)

Sultan Abdul-Hamid II., born Sept. 22, 1842, succeeded to the throne on the deposition of his elder brother, Murad V., on Aug. 31, 1876. At the end of 1908, the ministry was composed as follows: Grand Vizier, Kiamil Pasha; Sheikh-ul-Islam, Jemal-ed-Din Effendi; foreign affairs, Tevrik Pasha; interior, Hakki Bey; finance, Zia Pasha; justice, Hassan Fehmi Pasha; public instruction, Ekrem Bey; war, Ali Riza Pasha; marine, Arif Pasha; commerce and public works, Gabriel Effendi Noradunkian; evkaf (pious foundations), Shemseddin Bey; mines, forests and agriculture, Prince Mavrocordato; posts and telegraphs, Ghalib Pasha.

FINANCE. Up to the end of 1908 no statistics of revenue and expenditures were published. The revenue is derived from the tithes on agricultural produce, land and property taxes, import and export duties, monopolies, excise taxes on liquors, salt, paper, fisheries, and silk, etc. Military expenditures and the debt charges absorb the greater portion of the revenue. In 1881 the government made an arrangement with its creditors, by virtue of which a Council of the Debt Administration was appointed, with its seat at Constantinople. To this Council were handed over the excise taxes, the tobacco monopolies, the tax on Persian tobacco, and the Eastern Rumelia and Cyprus tributes. The sum of £536,363 was to be deducted from the total annual revenue of the Council for the service of the debt of 1878, amounting to £7,931,818 (sterling), and the balance was to be applied to the service of the general debt, four-fifths to interest and one-fifth to sinking fund. The interest was never to exceed 4 per cent., and any surplus was to be handed over to the government. The interest actually paid was 1 per cent. until 1903, when it was increased to 1¼ per cent. By a supplementary arrangement in 1903, it was decreed that 75 per cent. of any surplus beyond a fixed sum of £T2,517,375 for interest and sinking fund should be turned over to the government, and the remaining 25 per cent. should go to the sinking fund. In 1906-7 the government's share of the surplus had been mortgaged for at least three years ahead. The total revenue of

the Debt Administration in 1907-8 was £T3,919,003, against £T3,244,424 in 1906-7. On June 30, 1907, the Turkish debt stood as follows: Secured on Egyptian tribute, £T18,923,058; secured on the administered revenues (Debt Administration), £T76,378,680; various loans, £T10,867,406; total, £T106,169,144. Besides this there are due the balance of the Russian War indemnity (1878), which amounted to £T24,513,000 in 1898, since which year no payment was made, although the payment of £T350,000 falls due annually on January 14; and a debt of £T273,494 for the Beirut-Damascus railway.

ARMY. Military service is compulsory on all Moslems, but certain districts and tribes are either exempt or refuse to serve. Christians and Jews are excluded from the army, paying instead a tax of about \$1.65 annually. Moreover, any person can purchase freedom from active military service on payment of £T50, and another payment of the same amount will free him also from service in the second line. Thus the burden of active military service is borne exclusively by about two-thirds of the entire population; but, under the new reform régime, it is intended to make service universal. Liability to service begins at the age of 20, and continues until 40, as follows: Three years in the ranks of the first line, or *Nizam*, and six years in the reserve; nine years in the second line, or *Redif*; and two years in the third line, or *Mustafiz*. The reservists are liable to six weeks' actual military service each year, and those of the second line to one month every second year. There is also a second-class *Redif*, composed of the annual surplus of recruits beyond the required contingent. These receive from six to nine months' training the first year, and are liable to an annual service of 30 days during the following years. The empire is divided into seven military districts, with headquarters at Constantinople, Adrianople, Salonica, Erzerum, Damascus, Bagdad, and Sanaa. Besides these there are the military divisions of Hejaz and Tripoli, with headquarters respectively at Mecca and Tripoli. Excluding the troops in Arabia (30,000) and Tripoli (10,000), those in the depots, the 30,000 to 40,000 fortress artillery and engineers, and the 50,000 required for the defense of Constantinople and other places, the actual striking strength of the Turkish army consists of about 400,000 combatants. But on the other hand, there must be taken into account the 375,000 of the second-class *Redif* and 90,000 of the *Mustafiz*. Besides the regular military establishment there is also a *gendarmérie*, or rural police, of about 42,000, of whom 29,000 are in Asia Minor, 11,000 in Europe, and the remainder in Arabia and Tripoli. The latter province has a local militia force. The Lebanon has a small local police. Several important reforms were inaugurated in 1908. Among the more important may be mentioned the abolition of the old cumbersome military Commission, which consisted of 72 officers from the rank of field marshal to that of second lieutenant and which, under direct supervision of the Sultan, had control of military matters. This commission was replaced by another composed of 5 officers, under the supervision of the Minister of War. The pay of officers and men was increased; a new official military *Gazette* was established; new infantry drill regulations adopted; experiments were conducted with machine guns and automobile trains;

and renewed activity was to be seen in the musketry schools, at target practice, and on the manœuvring ground, all of which had been neglected for many years. The total military budget amounted to about £5,500,000 sterling.

NAVY. At the beginning of 1908 the effective navy consisted of 1 second-class battleship, of 9200 tons; 1 third-class battleship, 6700 tons; 1 armored coast defense vessel, 4690 tons; 2 protected small cruisers, 7200 tons; 2 unprotected small cruisers, 7200 tons; 3 gunboats, 1500 tons; 5 destroyers, 3120 tons; 24 torpedo boats, 2179 tons. Total, 39 ships, of 41,789 tons, besides 2 submarines. The increase in 1907 aggregated 6050 tons. Rear Admiral Douglas Gamble, R. N., was lent by the British Admiralty to Turkey for the reorganization of the Turkish navy, in both personnel and material. It was proposed to build 6 battleships, 12 torpedo boats, 24 gunboats, 4 river gunboats, 6 submarines, 2 mine laying ships, and 6 transports, as well as a naval dockyard and arsenal.

HISTORY.

The leading event of 1908 and, indeed, the most striking incident in recent European history, was the Sultan's unexpected announcement on July 24, that the constitution of 1876 was restored, thus marking the triumph of the revolutionary movement. The corrupt and disordered condition of Turkey had continued up to that time without interruption. In 1907 the Ottoman government had on its hands serious disturbances in Arabia, an incident of which was a mutiny on Feb. 13, on board the transport *Hodeida*, as the result of which, 300 of the troops jumped overboard while the vessel was passing through the Suez Canal. The disaffection in the army, in which the troops were badly armed and seldom paid, was again illustrated when the *Hodeida* arrived at Beirut. She was seized by mutineers who demanded the payment of arrears and the sending of provisions. Other mutinies, resulting from similar causes, also occurred during the year. The boundary dispute with Persia (q. v.), which continued also in 1908, was another source of trouble. Fighting continued on the Persian frontier, where the Kurds were adding to the difficulty by their depredations. In Macedonia (q. v.) the record of murders and outrages in 1907 showed that the question of reform and pacification was as far from settlement as ever. In 1908, down to the issue of the Sultan's decree these conditions remained unaltered. Assassination and pillage were repeated at short intervals in Macedonia; and the ill-paid and half-starved Turkish troops continued to give signs of disaffection. Nevertheless, only those who were in the counsels of the Young Turk party were prepared for the sudden triumph of the revolution as marked by the Sultan's announcement of a constitutional government.

THE RESTORATION OF THE CONSTITUTION. The Imperial iradé, decreeing the restoration of the constitution, was issued on July 24. It ordered a meeting of the Chamber of Deputies, provided for by the constitution which had been suspended in 1877. The decree was communicated at once to all the provincial authorities and it was received with great popular rejoicing. A general amnesty was proclaimed July 25. The Sultan announced that all appointments, with the exception of the Ministers of War and Marine, and the Sheik-ul-Islam, would be by the

advice of the Grand Vizier. On July 22, the former Grand Vizier, Ferid Pasha, had been dismissed, and Said Pasha had been appointed his successor. The existing ministry resigned and the hated palace officials were driven out. Izzet Pasha, one of the Sultan's favorites, fled to Europe. Hamdi Bey, the Minister of Police, and Ismail Pasha, who had organized the military spy system, were both dismissed. On July 29, an iradé was published, releasing all prisoners who had served two-thirds of their sentence. In an Imperial rescript it was declared that all Ottomans were on an equal footing, without distinction of race or religion, were assured against arbitrary arrest, and had permission to travel abroad and form commercial associations with foreign subjects (Aug. 1). On Aug. 3, the Sheikh-ul-Islam resigned on account of the Sultan's announcement that the appointments of the Minister of War and Marine should be retained by him, and not be subject to the Grand Vizier's nomination. On Aug. 5, Said Pasha resigned, and a new and more liberal ministry was formed with Kiamil Pasha as Premier. The Sheikh-ul-Islam, Jemal-ed-Din, who had resigned, was now reappointed. The Committee of Union and Progress, the organ of the Young Turk party, issued a manifesto, supporting the ministry and urging the people to be loyal to the Sultan. The new ministry characterized itself as a provisional government until the meeting of Parliament, saying that in the meanwhile their policy would consist in an economic administration of the finances, the promotion of efficiency in the army and navy, the revision of the code, the improvement of education, and the opening of government schools and colleges to Ottomans without distinction of race or creed.

CAUSES. In general, the revolution was said to be the work of the higher or middle classes, especially the members of professions and the better educated element in the population. The lower classes, except when they had come directly under the influence of the Young Turk officers or soldiers, were for the most part indifferent. The revolution, however, was the direct outcome of the Young Turk movement, which had been secretly and effectively carried on for many years. After the suspension of the constitution in 1877, the Young Turks came to the conclusion that gradual reform by peaceful methods was impracticable. Henceforth, their aims were distinctly revolutionary. They scattered throughout the countries of Europe, and Paris became the headquarters of their propaganda. A Committee of Union and Progress was formed and a paper founded by Ahmed Riza became its organ. Pamphlets were secretly disseminated and circulated in the empire. They did not venture to form organizations for active work within the empire itself until recent years, but directed the movement from abroad. On Oct. 20, 1904, they held a meeting at Bebek on the Bosphorus, and from that time on began to establish committees in various parts of the empire. Sections of five were organized and linked together. Each section chose its own chairman, but there were no known leaders of the movement. Changes appear to have been made in the organizations during the period of revolutionary activity immediately preceding the restoration of the constitution. From each section a delegate was appointed to a local committee in an important centre of population, and

each local committee was, in turn, represented at the headquarters of the Committee of Union and Progress, which are at Salonica. Almost nothing was known as to the real founders of the organization. It was said that women played an important part in acting as messengers and intermediaries. The recruits came from the middle classes, especially from the junior officers of the army and navy and from the officers in the middle and lower ranks of the civil service, the professional classes, and the ulema. Among the objects of the movement were the removal of Abdul Hamid and the checking of foreign interference in the conduct of Turkish affairs. No hope was felt for any adequate reform under the rule of the present Sultan, and the position of Turkey as a ward of the Great Powers, especially in the Macedonian administration, was humiliating to the Young Turks.

In Dec., 1907, a meeting, composed chiefly of Turks and Armenians, was held at Paris, representing the revolutionary and Liberal elements, and circulars were distributed condemning Abdul Hamid's rule. It pronounced Abdul Hamid hostile to education and to financial improvement, and declared that the country was in a wretched condition, that the revenues from taxation were stolen and not employed on public works, but only on the palace clique; that public moneys were wasted on a system of espionage; that transportation was defective and unsafe; commerce inert; agriculture backward, and the population obliged to emigrate. They demanded the abdication of Abdul Hamid, a radical change of officials, and the introduction of a representative system by means of a parliament. To these ends, they advised that such means be adopted as were best suited to the situation, armed resistance if necessary, and even a general insurrection, but wherever possible, peaceful measures such as persuading officials to resign, and appealing to the army not to fire on the people or on the revolutionists, the non-payment of taxes, etc. Macedonia, where the Salonica Committee of Union and Progress was especially active, was the main object of the revolutionary propaganda. Already in 1907 the movement had spread among the officers of the third army corps in Macedonia. Local organizations sprang up everywhere. The so-called "Bulgarian Internal Organization" is said to have afforded them a model and Freemasonry was also said to have been influential. For its own safety the movement was necessarily informal and it was only in its later phases that the committee had a definite meeting place. The second army corps at Adrianople was next approached, an emissary visiting them in secret and distributing seditious pamphlets among the troops. In the spring of 1908 an alleged plot was discovered at Salonica and the conspirators were seized and transported. By this time, however, the movement was so powerful and widespread that sometimes the spies sent to expose revolutionary designs, themselves joined the revolutionists.

IMMEDIATE OCCASION. The following account of the immediate occasion of the Sultan's action has been published. A certain emissary or spy, Nazim Bey, assuming that he had authority from the Sultan, opposed the policy of the Young Turkish commander, Essad Pasha, who had started a campaign against the prevailing corruption in Macedonia, and against the programme of

the reactionaries. On June 11, Nazim Bey was shot at and thereupon returned to Constantinople, saying that the Young Turks were in power in Macedonia and that the lives of the Sultan's representatives were not safe. A Commission was sent out from Constantinople, ostensibly for another purpose, but really to investigate the circumstances. Enver Bey, a leader of the Young Turks, was denounced. He was invited to Constantinople, but suspected treachery and refused to go. Thereupon a Macedonian officer, Niazi Bey, who served with distinction in the Greek War, raised the standard of revolt at Resna and Enver fled to his camp. This small body of revolutionists at Resna proclaimed the constitution in the name of the Committee of Union and Progress. Meanwhile, early in July, placards had been posted in Monastir, calling on all patriots to put an end to the terrible government under which Turkey suffered. These proclamations of the Young Turk party were torn down by the police. Against this small force of Major Niazi Bey, consisting of regulars, bashi-bazouks, and civil officers, two battalions of infantry were sent from Monastir, but refused to fire. Chemsî Pasha, who had devoted many years of his life to the task of keeping order among the unruly Albanians, was sent to the scene of the disturbance, but found matters so serious that he hesitated, awaiting definite orders from Constantinople as to what should be done. Having received orders to put down the revolt immediately and at all costs he started to lead his troops against the insurgents, but was shot down by his officers. Three Albanian battalions, which were about to be ordered to Monastir, mutinied. A Moslem priest sent from Constantinople to report on the situation was assassinated July 10. On July 12 a packet boat was fired upon by Albanians. On July 17 an attempt was made on the life of a general of division while he was reading a proclamation in the barracks at Monastir. There were signs of a concerted movement to get rid of the generals in command, who were supposed to be devoted to the Sultan. By this time, it seemed that the revolution had completely gained over the second and third army corps. The Sultan at first temporized, and hoping to satisfy the demands of the revolutionists by half-way measures, dismissed his Premier, and appointed Said Pasha. He was warned, however, by the revolutionists, that unless he proclaimed the constitution, they would march against Constantinople at once with an army 300,000 strong.

It was the fear of an imminent revolt of the army, too powerful to be resisted, that impelled the Sultan finally to issue his decree. The grievances of the troops were acute and of long standing. They were paid irregularly or not at all, and their pay was hardly enough to support life. In Macedonia, especially, the bad condition of the Turkish troops and soldiers appeared worse by contrast with the well paid and well equipped European officers in charge of the Gendarmerie. The Sultan had showed himself indifferent to the military except so far as concerned those immediately surrounding him. The army was, moreover, kept in terror by the widespread and oppressive system of spies. The troops of Asia Minor, as well as Macedonia, were said to be disaffected.

THE CONSTITUTION. The constitution of 1876, which was now restored, had been largely the work of Midhat Pasha, Abdul Hamid's first

Grand Vizier, who had been instrumental in bringing about the successful deposition of Abdul Aziz and Murad V., and placing Abdul Hamid on the throne. Abdul Hamid, however, soon laid aside the constitution (1877) and banished Midhat, who was afterwards put to death at Taif, May 12, 1883. Midhat was a greatly revered figure among the Young Turks, and had many friends. The party now looked for salvation to Murad V., as long as he lived, and afterwards to Reshad Effendi, the younger brother of the reigning Sultan, whom they hoped to see placed on the throne in his stead. The priests were friendly to the constitution and supported the Young Turks. The Sheikh-ul-Islam, the head of the Moslem ecclesiastical system, approved the constitutional movement. The constitution which the Sultan had suspended and now restored comprised among others the following provisions: Individual liberty asserted for all Ottomans, and declared inviolable; liberty of the press and of education; equality of all Ottomans before the law, whether Christian or Moslem; inviolability of domicile; abolition of torture under all its forms; a general legislative assembly to consist of two chambers, a Senate and a Chamber of Deputies; the Senate and its president to be named directly by the Sultan, and the Senators to hold office for life; the Deputies to be in the ratio of one to every 50,000 Ottoman males; elections to be by secret ballot and held every four years; Deputies to be eligible for reelection; the President and the two Vice-Presidents of the Chamber of Deputies to be selected by the Sultan from a list submitted by a majority vote of the chamber; no part of the constitution to be suspended or abrogated. The Young Turk movement for the restoration of the constitution was distinctly nationalist. Their committee in Macedonia had declared to the Powers and to the Christian population of Macedonia that full justice would be given to all inhabitants whatever their religion, but that they must remain Ottoman subjects. This naturally disappointed the small border nations, but it seemed essential to the success of the movement that no division of the empire or loss of territory should result. On the declaration of the constitution, there was at first extraordinary harmony between the Turks and the warring Macedonian nations. There and in other parts of the empire, racial differences seemed for the moment to be forgotten. Christians and Moslems fraternized. In Constantinople thousands of Turks, led by the Committee of Union and Progress, paid a visit to the cemetery to reverence the victims of the Armenian massacres of 1896. In turn the Armenians held memorial services for the Young Turks. The Greeks and Armenians formed an association for the promotion of friendship between the races.

Shortly after the announcement of the constitution, preparations began for the elections which were to be held in October. The Young Turks soon made it clear that they would not listen to the proposals of the various races for a federal form of government. They were determined that there should be a single sovereign parliament for the empire, in which the Turkish language alone would be permissible, and in which Turkish Mussulmans would necessarily form the vast majority. The programme of the Young Turks as outlined by the Committee of Union and Prog-

reass was published in September. Among its provisions may be mentioned the following: A cabinet responsible to the Chamber; a Senate not to exceed in number one-third of the Deputies; every Ottoman subject over twenty years of age to have the right to vote; no property qualification for the suffrage; the adding of an article to the constitution permitting the formation of political clubs; Turkish to be the official language; equal rights to all Ottoman subjects without distinction of race or religion; military service incumbent on non-Moslems as well as on Moslems; religious freedom; shorter term of military service; a modification of the constitution in order to give greater security to individual liberty; the necessity of new legislation on strikes and labor disputes; rendering of aid to the landless peasantry, but not at the expense of the present landowners; improvement of the system of the collection of revenues; the inspection of schools; and the promotion of agriculture and commerce.

At a congress held in Salonica, Oct. 19-Nov. 7, the Young Turks approved the programme of the party of Committee of Union and Progress, and decided on a number of measures of which the following may be mentioned: The sovereign's power is to be respected so long as he keeps his oath to the constitution; members of the committee elected as deputies to the Parliament shall there form a Party of Union and Progress; a Committee shall be named and shall publish a history of the Committee of Union and Progress and of the revolution; regulations shall be drafted governing the relations between the Committee and the army.

Kiamil Pasha, whom the Sultan, under pressure, chose as his first Grand Vizier in the new régime, was a liberal of the old school, who had been Grand Vizier early in the reign and had used his influence on behalf of the constitution and against the Palace clique. This had caused his dismissal and disgrace, and his life was spared, it is said, only through the intervention of the British Embassy. He was regarded as a friend of the British and as a supporter of Reshad Effendi, who after thirty years' imprisonment was released in September, and received in audience by the Sultan. Kiamil's programme as formulated in the first Cabinet Council declared for an honest budget, a civilized method of taxation, the reform of the bureaucracy and of the control of public funds; the collection of taxes by the Porte and not by the Palace; the reorganization of the army and navy, and universal military service without distinction of creed or race. The ambassadors at foreign courts were recalled and new ones appointed in their place. Steps were taken to improve the educational system. A request was sent to the Prussian Ministry of Education to place at the disposal of the Turkish government information in regard to the higher educational system of Prussia for guidance in forming the higher educational institutions of Turkey.

An important event to Albania was the opening of primary schools at Tirvana and Valona and other towns in the south, permitting children for the first time to receive instruction in their native tongue.

THE PARLIAMENT. The elections passed off without any disturbance. On Dec. 17 the new Parliament was opened by the Sultan in person. The Sultan in his address to the assembly de-

clared that the first Parliament had been dissolved because popular education had not attained a sufficiently high standard. Now that it had attained the required standard he had resolved to assemble the Parliament again and to again promulgate the constitution. He referred in terms of regret to the Prince of Bulgaria's unexpected abandonment of his allegiance to the empire, and to the Austro-Hungarian annexation of Bosnia and Herzegovina, and declared that it was the task of his ministers now to decide on measures for safeguarding the national rights, that he hoped Parliament would support them in this work, and that a peaceful solution of the problems might be attained. He declared that the objects to which ministers and Parliament should direct their labors were the reorganization of the national finances, the development of the country's resources, the spread of art and education, and the promotion of military and naval efficiency. Parliament assembled in the same hall that had been used by the Parliament of 1876, which was dissolved in 1878.

FOREIGN AFFAIRS. The paramount issue in Turkish foreign relations arose from the Bulgarian declaration of independence and the Austrian annexation of Bosnia and Herzegovina, for an account of which see the following articles: AUSTRIA-HUNGARY, BALKAN QUESTION and BULGARIA. A difficulty occurred with the Italian government early in the year; the Porte having refused on Apr. 14 to admit the demands of Italy for the opening in Turkey of Italian post offices. The Italian government planned a naval demonstration in Turkish waters, but before the fleet started was informed that the Porte had acceded to the demands. Down to the time of the Austrian annexation of the provinces, the relations between the Porte and Austria were friendly, as appeared in the affair of the Novi-Bazar Railway, the Porte having consented to Austria's request for the concession of the right to complete a line from between Mitrovitza and Sarajevo (see MACEDONIA). In September occurred a difficulty with the Bulgarian government on account of the failure to invite the Bulgarian representative to a diplomatic dinner at Constantinople. The Bulgarian agent was withdrawn. This was followed by the trouble over the military occupation of the Oriental Railway by Bulgaria. For further details see BULGARIA and BALKAN QUESTION. The attitude of Turkey toward Bulgaria and Austria-Hungary after the declaration of independence and the annexation; her protest against the action of Crete in declaring for union with Greece; the proposals for a conference of the signatory Powers to the Treaty of Berlin, and the negotiations for the settlement of the difficulty down to the close of the year are discussed under BALKAN QUESTION. It was generally held that, with the institution of parliamentary government in Turkey, German influence at Constantinople had received a severe blow. The Kaiser had for a long time posed as the good friend of Abdul Hamid. The constitutional régime had scarcely won its way when it was seriously threatened by Austria's action in regard to Bosnia and Herzegovina; and Austrian influence was, of course, largely German. It was natural, on the other hand, that the Young Turks should turn to France, whence the Turkish reformers have drawn their main inspiration, and to



MIDHAT PASHA

The Author of the Constitution first promulgated in 1876 and restored in 1908. He died in 1884



ABDUL HAMID II, SULTAN OF TURKEY
As he appeared at the time of the Promulgation of the Constitution in 1908



KIAMIL PASHA

Grand Vizier, who entered the Cabinet on the Triumph of the Young Turk Party

THREE FIGURES IN TURKISH HISTORY

Courtesy of the "Review of Reviews"

Great Britain. French and British ascendancy thus replaced Germany's predominant position in the empire.

OTHER EVENTS. On May 22, the Sultan issued a decree sanctioning the building of four additional sections of the Bagdad Railway, forming the Taurus division, which was thought to present the greatest difficulties. These sections were to complete the connection between Constantinople and the holy cities of Islam. The Hedjaz Railway was opened at Medina amid great popular rejoicings on Sept. 1. It was projected in 1900. Aleppo and Damascus were already connected by rail, and when the Taurus section of the Bagdad Railway is completed they will be connected directly with the shores of the Bosphorus. Reports of Kurdish depredations were frequent during the year. In October Kurdistan and Mesopotamia were reported to be in a disturbed condition. The Armenians complained of their attacks, and it was said that over a hundred villages had been pillaged. These reports, however, were not verified. In November the Armenians pressed their old grievances against the Kurds on the attention of the authorities at Constantinople. Armenian delegates appeared there with the demand that the losses incurred by some 50,000 of their people through depredations of the Kurds during the Armenian Massacres should be made good. They alleged that this number had been dispossessed. It was reported that two mixed commissions were to be appointed to look into the grievances. For an account of the trouble on the Persian border see PERSIA.

TURKS AND CAICOS ISLANDS. Two British groups of islands at the southeastern extremity of the Bahamas, attached administratively to Jamaica. There are over 30 islands, Grand Caicos being the largest; eight are inhabited. Total area, 169 square miles; population (1904) 5,300. The principal industry is the making of salt, of which 1,800,000 bushels were made in 1907; the yield was above the average, but the price was low. Pita, or sisal, covers 3200 acres. Other products are sponges, turtle-shells, and conches. In 1907 imports amounted to £27,660; exports, £23,817. The revenue and expenditure in the same year were £391 and £119 respectively. The Commissioner in 1908 was F. H. Hawkins. On Sept. 10, 1908, a devastating storm swept the islands, doing much harm to the salt pits and shipping.

TÜRK, STEPHEN. A Hungarian soldier, died at Buda-Pesth, on May 2, 1908. He was born at Baja, on Aug. 10, 1825, and took part in the Hungarian revolution of 1848-49. He was in exile for many years and served as a general under Garibaldi in his Italian campaigns.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. An institution for the education of negroes at Tuskegee, Alabama, established in 1880. The attendance for 1907-8 was 1621, from 38 States and 21 foreign countries. The Institute, in addition to the work done in the class room and in shops, carries on a wide range of what may be designated extension work. This includes the annual Negro Conference, with its numerous branches; the publication of a weekly farm paper, *The Farmers' Monthly Institute*; a short course in agriculture; the farm demonstration work, supported by the United States government and the Gen-

eral Education Board; a town night school and town day cooking school; a county Ministers' Institute; ministers' night school; weekly mothers' meeting; supervision of the County and State Fair; the National Negro Business League; and the general effort to coöperate with the county officials to improve the county schools. Gifts during 1907-8 amounted to \$116,783.66 for endowment; \$28,335.36 for improvements, and \$252,707.78 for current expenses and special purposes. The endowment fund in 1908 was \$1,513,440.03. The equipment is valued at \$917,000, not including certain unsold public lands, which are valued at \$200,000. The Principal is Dr. Booker T. Washington.

TUTUILA. One of the islands of the Samoan group, belonging to the United States, situated 46 miles southeast of Upolu. Its area is 54 square miles. Tutuila contains the best harbor of the Samoan group, Pago-Pago, or Pango-Pango. The shipments of merchandise from the United States to Tutuila in 1907 were valued at \$108. The shipments of gold and silver amounted to \$61,328. In 1908 the shipments of merchandise from Tutuila to the United States amounted to \$66,479.

GOVERNMENT. Tutuila and other islands of the same group came in 1899, by treaty with Great Britain and Germany, into possession of the United States. Since that time the government has been administered by an officer of the United States Navy, who is Governor of the Islands. Recommendations have been made by successive Secretaries of the Navy in their annual messages for a form of government for the Islands, but up to the present time no such action has been taken by Congress. The Governor, under the direction of the President, has full powers in the civil administration of the Islands, but the local government is largely delegated to native chiefs under the supervision of the Governor. Schools are conducted for native children and considerable progress has been made in improving the sanitary condition of the Islands. The population of the Islands is about 5800. The Governor in 1908 was Captain Charles V. T. Moore, U. S. N.

TYPHOID FEVER. The new and disquieting fact that certain persons who have had typhoid fever continue to harbor and distribute the germs of this disease for years afterwards gave rise to much investigation during 1908, with surprising results. Soper's case of a woman cook who acted as a chronic carrier, which was referred to in the YEAR BOOK of 1907, has been kept isolated and under observation for sixteen months and weekly examinations of the stools made. Typhoid bacilli in large numbers have usually been found, and treatment by internal antiseptics has been of no avail. Further investigation showed that a certain percentage of healthy persons who have never had typhoid are capable of harboring the bacilli. Klinger examined the feces of 1700 healthy persons who had not knowingly had the disease and found typhoid bacilli in the stools of 11. It was asserted that one in 500 of this class of healthy individuals are carriers; while of those who have suffered a definite attack of typhoid probably five per cent. thus disseminate the disease. The largest number of cases traced to any single carrier is 32. This woman worked in a dairy on an estate in Prussia and had had her attack 17 years before. The gall bladder is believed to act

as a sort of reservoir for this form of infection, and this belief has been confirmed by finding this organ infected at operations for gall stones; a number of autopsies on typhoid carriers has shown the gall bladder to contain large numbers of bacilli. Women predominate as carriers and this coincides with the greater prevalence of gall stones among them. Women also have exceptional opportunities for spreading the infection, owing to their occupations as cooks, dairy maids, bakers and general servants. These discoveries open up a difficult problem in municipal sanitation. In these carriers the number of bacilli excreted is greater than the output of a patient at the height of an attack of typhoid, and isolation for long periods of time of otherwise healthy individuals, is as yet impracticable, even were the difficulty of detecting such individuals overcome. Additional evidence that oysters and other shellfish are a not infrequent means of spreading typhoid came to light in 1908. For many years there has been a constant and unexplained prevalence of this disease in Belfast, Ireland, notwithstanding sanitary precautions and an excellent water supply. The mortality has been greatly in excess of that due to typhoid in any other cities in the British Isles. A special inquiry being instituted by several experts, it was determined that the unrestricted gathering and consumption by the poorer classes of uncooked cockles and other shellfish from the sewage-laden shores of the Lough was the cause. The wealthier classes and the Jews were practically exempt, the latter refusing to eat shellfish. The New York Board of Health had been studying the cultivation of oysters since 1904 and as a result promulgated the following addition to the Sanitary Code: "No oysters shall be held, kept, or offered for sale anywhere in the City of New York without a permit in writing from the Board of Health, and subject to the rules and regulations of said board." The aim of this measure is to prevent the sale of fattened oysters, which are usually exposed in beds polluted by sewage. See SANITATION.

TZE-HSI or **TSI-AN**. Dowager Empress of China, died on Nov. 15, 1908, at Peking. She was born in Nov., 1834, the daughter of a Manchu military official (a brother of Prince Chun), and at her birth was named Yehonala. Her remarkable beauty as a girl caused her to be selected, at the age of sixteen, as a concubine of the fifth class for the Emperor Hsien-feng, and upon the birth of her son, T'ung-chi, was raised to the rank of "Imperial Consort." Extraordinarily clever, ambitious, and utterly unscrupulous, she easily outwitted the weak-minded Emperor, and even succeeded in making an ally of the Empress. The Emperor died in 1861, and was succeeded by Tze-Hsi's son, T'ung-chi, who, however, died in 1875 (about two years after he had attained his majority), and was succeeded by her nephew, Kwang-Hsu. Though it was entirely contrary to Chinese custom, she managed to retain much administrative power. Even after Kwang-Hsu had reached his regal majority, she continued in possession of the Great Seal, and controlled the appointment or dismissal of those of the first and second rank in the official hierarchy. Kwang-Hsu's reform measures she effectually suppressed in Sept., 1898, by manœuvring him into a political position even more dependent than he had hitherto occupied, by causing him to be imprisoned in his palace, and by punishing with death

all the reformers she could apprehend. She professed great regret over the results of the Boxer uprising in 1900, but was accused of having at least countenanced it. She was said to have been demented by "the lust for power and gain," and though a woman of great capabilities her record was deeply stained, her gifts of statesmanship being frequently directed to selfish and ignoble ends. See CHINA, and KWANG-HSU.

UECHTRITZ, KUNO VON. A German sculptor, died on July 29, 1908. He was born in Breslau, on July 3, 1856, and studied under Tilgner, at the Vienna Academy. The earlier years of his career were devoted chiefly to portraiture; he also produced several interesting pieces in which he employed variously colored marbles. In 1886 he settled in Berlin and thereafter devoted himself to sculpture of a more ambitious sort, executing fountains, memorials and other monumental works of a high order of merit. His best known pieces are the statue of the Elector George William, in the *Siegesallee*, Berlin (1899), the von Moltke monument in Breslau, and the statue of Bismarck, at Grimme. The Steuben memorial, designed by him, was awarded a gold medal at the St. Louis Exposition of 1904.

UGANDA PROTECTORATE. A British possession in East Africa. Area, 223,500 square miles; population, about 4,000,000 (450 Europeans). The sleeping sickness has killed off thousands of natives. Coffee, cotton, and rubber have been introduced. Ivory, skins, rubber, and chillies are the principal exports. Iron, copper, gold, graphite, mica, and other minerals are found. The imports are mainly foods, drinks, and textiles. The imports in 1905-6 amounted to £206,181; the exports, £108,204. The Uganda Railway, owned by the government, runs for a distance of 584 miles from Mombasa, on the coast, to Port Florence, on the northeastern corner of the Victoria Nyanza. Several steamers are operated on the lake in connection with the railway. The Imperial grant-in-aid in 1907-8 was £85,000. The Governor in 1908 was Sir H. H. Bell.

On April 9 the governor, Sir Hesketh Bell, published in England an appeal on behalf of the sufferers from the sleeping sickness. During the preceding five years the deaths from that cause were estimated at over 200,000, more than two-thirds of the population. The lake shore and islands were deserted. The fathers of the Algerian Mission were working to administer relief, but their resources were meagre. The subject was much discussed, and a Sleeping Sickness Bureau was formed in London. On May 23 a serious famine was reported in the Usoga provinces, the crops having completely failed. Deaths from the famine were estimated at 4,000, and the government was feeding some 50,000 persons in the stricken region. In August the government measures to check the spread of the sleeping sickness were reported to have had considerable effect.

ULRICH, CHARLES FREDERICK. An American painter, died on May 15, 1908, at Berlin. He was born in New York City on Oct. 18, 1853. After studying art at Cooper Union and at the Academy of Design, he went to Munich, and worked under Loefftz and Lindenschmidt. He won a bronze medal at Munich in 1879; the same year he returned to New York City. He was elected an Associate member of the National

Academy in 1883. In 1884 his "Land of Promise" (a group of immigrants landing at Castle Garden) won the Thomas B. Clarke prize at the National Academy. His other more important pictures include: "The Wood Engraver" (1882); "The Glass Blowers" (1883); "Waifs" (1885); and "Relics of Bygone Days" (1885). In 1886 his "Glass Blowers of Murano," now in the Metropolitan Museum of Art of New York, won the \$2500 prize offered by the American Art Association. In 1884 he went to Venice to live, and in 1897 moved to Germany.

UNEMPLOYMENT. The extent of unemployment in the United States as a result of the industrial depression was greater in 1908 than at any time since 1893-94. In January there were street processions and public demonstrations by the unemployed in New York, Boston, Chicago, Cincinnati, St. Louis, and other large cities. Throughout the early months of the year repeated demands were made upon city mayors and councils that work be provided by public undertakings. Similar demands were made upon State Legislatures in Massachusetts and New York. There were also demands for pensions for the unemployed and for forcible reduction of rents, including a rent strike by New York's tenement population. The number of unemployed could be only roughly estimated, but a very conservative estimate of those out of work, who in normal times were employed, was 250,000 men, not including women and children. The unemployed tended to congregate in the larger cities. Municipal lodging houses were filled to capacity; demands upon charity organizations were greater than could be met, owing both to decreased income and to very unusual need of help. While the number of unemployed probably was at no time greater than in January, the number of those in actual distress continued to increase until the middle of the summer. The unskilled workers and those marginal laborers who are the last employed and the first discharged were the first to feel distress. But as the spring advanced many poor but respectable workmen, including many skilled laborers, found their savings gone, their credit at local stores exhausted and themselves dependent on an already overtaxed charity. Applications to the Army and Navy increased 50 per cent. Naturally the increase in crime, especially crimes against property, was quite marked.

In New York City the situation was very serious. The number of those in the city out of work who were ordinarily employed was estimated at not less than 200,000 in the early spring; some who were familiar with conditions placed the number at very many more than this, though under such conditions sympathy leads to exaggeration. The New York Society for the Improvement of the Condition of the Poor was caring for more than 4000 families in May, as against 2475 in January. The Charity Organization Society cared for 73 per cent. more families in the year following October, 1907, than in the year preceding. It also reported that during the year the applications by homeless men had been five times their usual number; and that during the winter months the woodyard furnished employment to five times the usual number. To avoid demoralizing fairly capable men and women who wanted work but for whom no work could be found was a serious problem with organized charity during 1908. The reports of

the New York State Labor Department showed that 32.7 per cent. of the membership of union labor in that State was out of work at the beginning of the year, as compared with an average of 18.3 per cent. for the five years 1902-6. The percentages in the metal, building, clothing, and tobacco trades were respectively 30.9, 42, 43.6 and 55. By the end of March the unions reported that 35.7 per cent. of their members were idle, and that 27 per cent. had had no work at all since Jan. 1. The average percentages for this date were 17.5 and 10 respectively. Since the number reported out of work on account of disability, or strikes and lockouts, was not unusual, the increase above the normal was due to "lack of work." Beginning with April, there was a steady and gradual improvement in the state of employment for union labor. This was not, however, as fast as the usual rate of improvement during the spring; but after June the improvement was at an unusually rapid rate.

No doubt these conditions in New York State were paralleled in other States with large industrial centres, and those in New York City in other large cities. Thus in Brooklyn the demands on the charitable association as measured in numbers of applicants, were 70 per cent. higher in January, 1908 than in January, 1907; in Buffalo the increase reported was 170 per cent.; in St. Paul, 50 per cent.; in Cincinnati, 114 per cent.; in Cleveland, more than 100 per cent.; in Philadelphia, 120 per cent.; in St. Louis, 74 per cent.; in Chicago, fully 50 per cent.; and in Baltimore, 48 per cent. Everywhere there was a notable increase in the number of homeless persons in January, 1908, as compared with a year before. For this reason also the amount of expenditure for charitable relief increased in some cities even more than the number of applicants. In many cities special days were set aside as "emergency" or "charity day" for the raising of funds; committees of business men were formed for the same purpose. Churches and organizations of churches made extraordinary efforts in neighborhood relief. A number of cities followed the examples of Baltimore and Columbus, Ohio, in providing work on parks, streets and alleyways.

In England the condition of unemployment, especially at the close of the year 1908, was likewise graver than at any time since 1893. The situation was very serious in London and Glasgow, but was bad in most of the cities of the Midlands and North of England. In Glasgow the unemployed were loosely organized and made their conditions known to the city council. Relief work in developing park land and other city property was provided. Similar movements followed in Manchester, Leeds, Bradford, Birmingham and elsewhere. In London, in November and December, there were street parades and demonstrations in Trafalgar Square by large and threatening crowds, who demanded not charity, but work. The central committee at London and the local committees in other cities, organized under the Unemployed Workmen's Act of 1905, used all the public funds available and all the private subscriptions they could secure in providing work. Parliament devoted much time to the problem in November and the government made plans for expending ten to fifteen million pounds in providing work. The number of unemployed in England and Scotland was conservatively estimated in November at 1,100,000.

Kier Hardie, a socialist member of the House of Commons, put the number at 2,250,000, of whom he thought three-fourths were skilled artisans. The general cause of this unusual condition was the industrial depression throughout the world. The industries most seriously affected in Great Britain were iron and steel, shipbuilding and cotton. The closing of 400 cotton mills in the Lancashire district in September, as the result of a wage dispute, added about 140,000 to the number of unemployed. See STRIKES AND LOCK-OUTS.

Nearly every country of Continental Europe experienced more than the usual amount of unemployment in 1908. This condition did not develop as early as in the United States, but in the spring Vienna, Berlin, Amsterdam and The Hague reported large numbers of men out of work. This state of affairs was attributed in large measure to the American financial crisis and following depression. The great decrease in the American demand for goods and heavy losses by foreign investors in American securities brought about a considerable reduction in employment. In Vienna the Municipal Employment Bureau established branches in various parts of the city and rendered gratuitous services in finding work for those seeking it. In Berlin one of the morning dailies issued an afternoon supplement containing only advertisements for work and for help and distributed free copies on the streets. In Amsterdam the decline in the demand for diamonds threw out of work several thousand skilled cutters. There was also a great lack of work in the building trades, between fifty and sixty per cent. being unemployed, and labor disturbances among the 'longshoremen, growing out of the *padrone* system of employment, added to the ranks of idle men. Relief was sought by a novel plan of unemployment insurance, through coöperation of the city and the trade unions. The city agreed to increase by one-half the amount allowed by trade-unions to its unemployed members. Since the unions would assist only the deserving, the plan was thought to insure the best possible distribution of the city's aid. The fund available for relief was increased by \$100,000 raised by popular subscriptions and by collections on the street. To unify the relief administration, a committee of five, two appointed by the city, two by trade-unions and one by these four, was placed in charge. No doubt, the numbers of unemployed in Europe were greatly increased by the hundreds of thousands of aliens who left the United States in the months following October, 1907, every European country receiving its quota. See IMMIGRATION AND EMIGRATION.)

UNITARIANS. A religious denomination whose distinctive feature is the acceptance and adoption of the principles of freedom and progress in religion. In 1825, representatives of Unitarian churches in the United States, united in establishing the American Unitarian Association. The Association is the administrative body of the church; with headquarters in their fine building at 25 Beacon Street, Boston, Mass. In 1908 there were 483 societies and 558 ministers. Five new churches were added during the year. The receipts of the Association were \$260,272, and its permanent funds amount to \$1,176,743. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. Eight academies are under its auspices.

Among the organizations of the church are the National Conference of Unitarian and Other Christian Churches, the Unitarian Sunday School Society, the Young People's Religious Union, and many Unitarian clubs and ministerial associations. The Fourth Congress of the International Council of Unitarian and other workers, and the National Conference were held in Boston in September, 1907. The publication department circulated 387,000 free tracts in 1907-8, and sold 12,000 books. Active missionary work is carried on at many points among the Icelandic, Norwegian and Swedish immigrants. Field secretaries are employed in New England, New York, Chicago, Colorado and the Pacific Coast. Among the Unitarian periodicals are the *Christian Register*, published in Boston, *The Unitarian*, published in New York, and *The Pacific Unitarian*, published in San Francisco. The President of the Association is Rev. Samuel A. Eliot, D.D., and the Secretary, Rev. Lewis G. Wilson.

UNITED BRETHREN IN CHRIST. A religious denomination which took its beginnings among the Germans of Pennsylvania under the preaching of Philip William Otterbein. The first formal conference met in Baltimore in 1789 and the first general conference at Frederick, Md., in 1900. The membership in 1908 was 281,309. There were 3,872 organized churches and 1,967 itinerant and 432 local preachers. There were 3,604 Sunday schools in which were enrolled 311,848 scholars and 39,008 teachers. Missions of the church are conducted in Japan, West Africa, Porto Rico, China, and the Philippines, and domestic missions are also carried on. The total expenditures for missions amounted in 1908 to \$169,079. The church devotes much attention to higher education. Among its institutions of higher learning are Leander Clark College at Toledo, Ohio, Otterbein College at Westerville, Ohio, and Central University at Indianapolis, Ind. Efforts have been made during several years to bring about the union of the United Brethren, Congregational, Methodist Protestant, and several smaller denominations. The movement was temporarily halted by the decision of the National Council of Congregational Churches in 1907 to postpone action.

UNITED EVANGELICAL CHURCH. A religious denomination organized in 1894 as the result of a division in the Evangelical Association (q. v.). In 1908 the church numbered 70,116 communicants, 1,014 churches and 553 ministers. In the Sunday schools were about 90,000 scholars and 12,000 officers and teachers. The Church Extension Society has general charge of establishing new churches. Missions are sustained in China. Among the educational institutions under the auspices of the denomination are Albright College, Meyerstown, Pa., Dallas College and La Creole Academy at Dallas, Ore., and Western Union College at La Mars, Iowa. The denomination maintains a publishing house at Harrisburg, Pa., where are published the *Evangelical*, the official organ of the church, and several other periodicals.

UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA. A religious denomination founded in Pittsburg, Pa., on May 26, 1858, by a union of the Associate and Associate Reformed Churches. The membership in 1908 was 153,956, of whom 24,170 are in the foreign missionary fields. There were 1098 ministers and 1082 churches. In the 1336 Sabbath schools were

138,298 scholars, and 13,996 officers and teachers. The contributions from the Sabbath schools for the year amounted to \$154,219. The total contributions for all purposes for the year amounted to \$2,441,587, of which \$755,158 was for salaries of ministers; \$818,789 for congregational purposes; \$566,661 for the Boards of the Church, and \$294,340 for general purposes. The net value of church properties and funds for 1907 was \$16,489,095. The church sustains seven colleges in the United States and one in Assiut, Egypt. There are theological seminaries at Allegheny, Pa., and Xenia, Ohio. The property value of its institutions is \$917,700. Missions are carried on in Egypt, India and the Sudan; there are missions also among the negroes in the South. The leading papers of the denomination are the *United Presbyterian* and the *Christian Instructor*, and there are several other periodicals issued from the publishing house, which is in Pittsburg, Pa.

UNITED SOCIETY OF CHRISTIAN ENDEAVOR. See CHRISTIAN ENDEAVOR, UNITED SOCIETY OF.

UNITED STATES. The total area belonging to or under the jurisdiction of the United States is estimated by the United States Coast and Geodetic Survey at 3,743,344 square miles, divided as follows: United States, 3,026,789; Alaska, 590,884; Philippine Islands, 115,026; Hawaiian Islands, 6,449; Porto Rico, 3,435; Panama Canal Zone, 474; Guam, 210; Tutuila Group, Samoa, 77. The total population, including Alaska and Hawaii, but excluding Porto Rico and the Philippines, was, according to the census of 1900, 76,303,387. According to a Federal estimate made in 1908 the population of the continental United States was 86,895,359, while the whole population was estimated at 87,189,392.

AGRICULTURE. The aggregate value of the agricultural products of the United States in 1908 was, according to estimates made by the Department of Agriculture, \$7,778,000,000. The production was above the average of recent years in nearly all crops. The farm value of products was \$290,000,000 above the value for 1907; \$1,023,000,000 above that of 1906; and \$3,061,000,000 above the census amount of 1895. Expressed in the form of percentage of increase the amount for 1908 was 4 per cent. greater than that for 1907. See AGRICULTURE, articles on agricultural subjects and the articles on different crops. See also State articles.

INDUSTRIES. See MINERAL PRODUCTION; IRON AND STEEL; COTTON; SUGAR; RAILWAYS; SHIPBUILDING; SILK; TEXTILE MANUFACTURING; BOOTS AND SHOES; LEATHER; STRIKES AND LOCKOUTS; TRUSTS, ETC.

FOREIGN COMMERCE. The tables on pages 716 and 717 show the exports and imports of the United States for the fiscal years 1906, 1907, and 1908. These tables, together with the summary given below are from data prepared by the Bureau of Statistics of the Department of Commerce and Labor. The exports for the fiscal year ending June 30, 1908 show a decline of a little more than \$20,000,000 over those of the fiscal year 1907, while imports show a decline in the same period of \$240,000,000. These results were caused by the general decline which characterized the trade figures of the commercial world during that period. The decline in exports occurred exclusively in crude materials for use

in manufacturing, both food stuffs and manufactures showing an increase over the preceding year. In imports the decline occurred in food stuffs, in manufacturers' materials and in manufactures. The food stuffs exported amounted to \$521,000,000 in value against \$513,000,000 in 1907; crude materials for use in manufacturing, \$557,000,000 against \$593,000,000 in the preceding year; manufactures for further use in manufactures, \$261,000,000 against \$259,000,000 in 1907, and finished manufactures, \$489,000,000 against \$480,000,000 in 1907. Food stuffs imported amounted to \$292,000,000 against \$308,000,000 in the preceding year; crude materials for use in manufacturing, \$363,000,000 against \$477,000,000 in 1907; manufactures for further use in manufacturing, \$196,000,000 against \$274,000,000 in 1907, and manufactures ready for consumption, \$331,000,000 against \$364,000,000 in 1907. Raw cotton exported fell from 4,513,217,220 pounds in 1907 to 3,816,998,693 pounds in 1908, the value falling from \$481,277,797 in 1907 to \$437,788,202 in 1908. Bread stuffs, as a whole, show an increase of \$31,000,000 in value; meat and dairy products, a decline of \$10,000,000; mineral oil an increase of \$20,000,000, passing for the first time the \$100,000,000 mark; wood and manufactures of wood a decline of nearly \$2,000,000; iron and steel manufactures an increase of \$2,000,000, and copper an increase of \$10,000,000. Corn shows a falling off in the quantity exported, the total for the year 1908 being 52,000,000 bushels as against 83,000,000 bushels in 1907, while wheat shows a marked increase, the total for 1908 being 100,000,000 bushels against 76,500,000 in 1907; flour shows a slight decline, being 13,927,000 barrels in 1908 against 15,584,000 barrels in 1907. In copper the exports for the first time exceeded \$100,000,000, the total value of copper ingots, bars, plates, and other manufactures exported in 1908 amounting to \$104,000,000 against \$95,000,000 in 1907 and \$81,000,000 in 1906. The quantity of ingots exported in 1908 was 702,000,000 pounds against 414,000,000 in the preceding year, showing a large increase in quantity, though a marked decline in price, since the 702,000,000 pounds exported in 1908 were valued at \$101,000,000 while the 414,000,000 pounds exported in 1907 were valued at \$89,000,000.

The decline in the foreign commerce in the fiscal year 1908 was not peculiar to the United States, but was in fact a part of a general and marked decline throughout the world in international trade movements, as measured by figures of value, though the decline in the case of the United States is, on the import side, more pronounced than that of certain other countries. Exports of manufactures, despite the generally depressed condition of international trade, showed an increase over 1907 or any earlier year in the history of the export trade. Europe continues to be the principal market for the manufactures exported from the United States, as well as for the raw materials. The value of American manufactures exported to Europe in the fiscal year 1908 was, in round terms, \$368,000,000 against \$355,000,000 in 1907. Rapid as is the growth in exports of manufactures, the share which Europe takes in this has been in recent years apparently increasing. Of the manufactures exported from the United States during the past four years, 46.3 per cent. went to Europe in

1905; 46.4 per cent. in 1906; 47.9 per cent. in 1907, and 49 per cent. in 1908. The most important of the manufactures exported to Europe were those for further use in manufacturing, such as copper, chiefly ingots and bars, leather and manufactures thereof, wood and manufactures, chiefly lumber, and manufactures of iron and steel. Other important manufactures exported to Europe included refined mineral oils, naval stores, agricultural implements, drugs and dyes, manufactures of cotton, carriages and cars. North America came second in the order of magnitude in exports of manufactures, the value of manufactures exported to all North America being \$189,000,000; to South America, the exports of manufactures for the year were, in round terms, \$72,000,000, and to Asia, the total value of manufactures exported was also \$72,000,000; while \$42,000,000 worth were exported to Oceania and \$10,000,000 worth to Africa.

The trade of the United States with its non-contiguous territory showed a slight increase over that of 1907, although the gain occurred exclusively in merchandise sent from these territories to the United States. The value of merchandise shipped from the United States to its territories aggregated \$65,771,946 in 1906, against \$67,250,714 in 1907. The reduction occurred in shipments to Alaska and Porto Rico, while in those to Hawaii and the Philippines the figures indicate a gain in the last year over 1907. The value of domestic merchandise sent to Alaska in 1908 was, in round terms, \$16,000,000 against \$18,000,000 in 1907; to Porto Rico, \$22,000,000 against \$25,000,000 in 1907; to Hawaii, \$14,500,000 against \$14,000,000 in 1907; and to the Philippines, \$11,500,000 against \$8,500,000 in 1907. The shipments of merchandise from the non-contiguous territories to the United States show an increase of nearly \$14,000,000 over 1907, and a marked gain over any preceding year, amounting to \$88,500,000, of which \$41,500,000 was from Hawaii, chiefly sugar; \$26,000,000 from Porto Rico, chiefly tobacco and fruits; \$11,000,000 from Alaska, chiefly salmon, copper, and furs, and \$10,000,000 from the Philippines, chiefly manila hemp and sugar.

The commerce with Cuba shows a slight reduction in 1908 compared with 1907, owing to the low sugar crop on the island and the consequent falling off in the importations of sugar therefrom, the total quantity imported from Cuba in the fiscal year 1908 being but 2,309,000,000 pounds against 3,236,000,000 pounds in

1907 and the value of \$58,320,000 in 1908 against \$70,637,000 in 1907. The total value of imports from Cuba in 1908 was \$83,284,692 against \$97,441,690 in 1907, and the value of the exports to the Island was \$47,161,306 in 1908 against \$49,305,274 in 1907.

The imports of the United States for the calendar year ending Dec. 31, 1908 were \$1,116,447,681, and the exports were \$1,752,833,247. These figures represent a falling off over the calendar year of 1907 of \$307,000,000 in imports and \$167,000,000 in exports. An analysis made by the Bureau of Statistics of the Department of Commerce and Labor indicates that this falling off is due largely to reduced prices. The importation of foodstuffs dropped from \$305,000,000 in the calendar year 1907 to \$292,000,000 in 1908; crude materials for use in manufacturing from \$464,000,000 to \$360,000,000; manufactures for further use in manufacturing from \$263,000,000 to \$179,000,000; and manufactures ready for consumption from \$379,000,000 to \$276,000,000; while miscellaneous merchandise fell from \$12,000,000 to \$9,000,000.

The pig iron imports for 1908 amounted to \$24,000,000, against \$32,000,000 in 1907, while the quantity imported was practically the same in 1908 as in 1907, being in 1908 \$82,503,000 and in 1907 \$82,549,000. These imports show a valuation of but twenty-three and a third million dollars in 1908 against thirty-nine and a half millions in 1907, a fall of but forty per cent. in value and of but twenty-four per cent. in quantity. On the export side the fall in values is also due in part to lower prices, though probably not to so great an extent as the imports. The value of cotton exported during the year amounted to \$439,000,000, against \$470,000,000 in 1907, while the quantity exported in 1908 was 4,375,000,000 pounds against 4,192,000,000 pounds in the preceding year, a decrease of \$31,000,000 in value, but an increase of 183,000,000 pounds in quantity. The manufactures in which the largest decline occurs are on the export side, and the falling off is apparently partly due to lower prices; the average export price on pig iron having been in December, 1908, \$15.30 per ton, against \$20.28 in December, 1907; and on billets, ingots and blooms \$22.84 per ton in December, 1908, against \$29.32 in December, 1907; while other classes of iron and steel show a decline in export prices in December, 1908, as compared with December, 1907, as do also sole leather, lumber and naval stores.

IMPORTS AND EXPORTS FOR THE FISCAL YEARS 1906, 1907 AND 1908

Countries	Imports			Exports		
	1906	1907	1908	1906	1907	1908
Europe						
Austria-Hungary	\$13,865,433	\$16,012,138	\$15,425,659	\$14,800,019	\$15,136,185	\$16,174,738
Belgium	28,411,318	30,140,053	19,895,677	50,021,107	51,493,044	52,940,514
Denmark	1,256,663	1,125,945	1,272,938	22,943,926	23,384,989	21,541,696
France	108,415,350	127,803,445	101,999,541	97,892,480	113,604,632	116,123,468
Germany	135,142,996	161,544,552	142,935,547	234,742,102	256,653,060	276,922,089
Greece	2,032,408	3,086,419	3,019,666	239,726	1,634,431	.....
Italy	40,597,556	50,455,119	44,844,174	48,081,740	61,746,965	54,217,394
Netherlands	27,007,107	32,454,616	20,305,864	95,471,593	104,450,319	102,206,184
Norway	3,132,364	3,765,387	3,668,909	6,016,269	5,682,508	6,841,626
Portugal	5,139,708	6,479,500	4,967,922	1,462,763	2,787,422	3,086,072
Russia in Europe	13,536,505	16,559,437	11,113,421	16,001,970	19,778,156	16,342,377
Spain	10,689,653	13,426,665	14,152,712	19,099,336	21,330,334	21,906,379
Sweden	3,899,481	4,171,264	4,633,672	7,437,160	9,413,649	9,671,810
Switzerland	23,421,242	26,830,480	24,698,036	399,366	612,579	646,840
Turkey in Europe	6,508,518	6,939,761	4,554,509	874,449	1,125,099	1,418,024
United Kingdom	210,029,437	246,112,047	190,355,475	583,090,123	607,783,255	580,663,522
Total Europe	\$633,292,184	\$747,201,255	\$608,014,147	\$1,200,166,086	\$1,298,452,330	\$1,283,600,155

IMPORTS AND EXPORTS FOR THE FISCAL YEARS 1906, 1907, AND 1908—Continued.

Countries	Imports			Exports		
	1906	1907	1908	1906	1907	1908
North America						
Bermuda	\$410,771	\$571,993	.....	\$1,138,249	\$908,637	\$957,066
British Honduras	789,422	754,581	\$737,389	1,104,204	1,280,540	1,299,145
Canada	68,237,653	73,334,615	75,131,666	156,736,685	183,206,067	167,035,947
Newfoundland and Labrador	1,364,944	1,478,259	1,169,060	2,964,297	2,920,349	3,587,748
Central American States						
Costa Rica	4,622,426	4,965,034	4,405,165	2,338,188	2,470,986	2,696,744
Guatemala	3,386,317	3,872,538	3,390,167	2,908,655	2,848,864	1,730,700
Honduras	1,724,865	2,296,556	2,068,070	1,632,251	1,833,056	1,768,995
Nicaragua	1,478,408	1,028,166	1,160,832	1,870,852	1,923,111	1,574,879
Panama	1,065,887	1,752,314	1,469,344	12,460,289	16,150,953	18,232,666
Salvador	1,131,734	1,171,298	1,469,344	1,401,276	1,603,166	1,357,297
Mexico	50,965,177	57,233,416	46,945,690	58,182,278	66,248,098	55,509,604
West Indies:						
British	10,259,253	12,191,852	12,129,350	9,706,654	10,755,139	12,475,383
Cuba	84,979,821	97,441,690	83,284,692	47,763,688	49,305,274	47,161,306
Danish	366,361	440,855	592,292	726,810	777,577	727,193
Dutch	278,171	356,071	361,966	751,453	711,141	706,210
French	20,042	41,019	60,111	1,265,956	1,422,025	1,455,701
Haiti	1,185,477	1,274,678	689,045	3,307,840	2,916,104	3,649,172
Santo Domingo	3,086,338	3,370,899	4,583,661	2,018,251	2,509,817	2,703,276
Total North America.	\$235,355,322	\$263,576,349	\$238,815,898	\$308,382,972	\$349,840,641	\$324,674,719
South America						
Argentina	\$18,379,066	\$16,715,325	\$11,024,098	\$32,673,359	\$32,163,336	\$31,858,155
Bolivia .....	.....	.....	.....	146,798	941,287	1,226,238
Brazil	80,415,524	97,881,158	74,577,864	14,530,471	18,697,547	19,490,077
Chile	16,945,476	18,287,029	14,777,811	8,667,227	10,195,657	9,194,650
Colombia	7,084,487	6,308,680	6,380,755	3,491,420	3,084,718	3,452,375
Ecuador	2,632,206	3,059,573	2,401,188	2,009,861	1,726,289	1,909,126
Guiana:						
British	1,016,405	1,213,813	230,828	1,749,609	1,847,147	1,988,385
Dutch	708,368	690,911	780,369	572,463	519,504	645,417
French	38,383	33,922	33,136	286,213	294,976	334,174
Paraguay	750	3,819	14,645	51,917	173,560	100,568
Peru	2,454,943	4,958,202	6,670,616	4,833,307	6,075,739	6,959,579
Uruguay	2,711,570	3,160,891	1,364,796	2,905,573	3,412,785	3,868,661
Venezuela	8,034,701	7,852,214	6,725,184	3,258,133	3,024,629	2,555,863
Total South America.	\$140,422,876	\$160,165,537	\$124,998,590	\$75,159,781	\$82,157,174	\$83,583,874
Asia						
Aden	\$2,312,238	\$2,586,207	\$1,615,261	\$1,708,789	\$2,110,516	\$1,097,277
Chinese Empire	28,531,207	33,436,542	26,020,922	43,774,375	25,704,532	22,343,657
East Indies:						
British India	45,763,975	58,995,249	44,465,398	6,197,089	7,310,143	9,238,202
Straits Settlements	17,171,899	20,899,618	13,185,276	1,024,311	1,506,075	2,439,239
Other British	3,240,965	3,924,876	3,838,613	233,302	203,508	209,417
Dutch	20,575,521	11,401,065	14,095,364	1,766,159	2,041,028	2,181,952
Hongkong	1,829,040	2,740,642	2,129,256	7,044,907	8,332,175	8,975,161
Japan	52,551,520	68,910,594	68,107,545	38,464,952	38,770,060	41,432,327
Korea	218	1,120	.....	1,065,294	1,459,223	1,563,113
Russia, Asiatic	282,207	1,144,745	.....	2,813,544	2,004,199	2,072,915
Turkey in Asia	6,485,749	7,666,427	6,205,061	645,578	628,716	555,376
Total Asia	\$180,095,671	\$212,475,427	\$181,167,616	\$105,451,610	\$92,703,664	\$101,784,832
Oceania						
British Oceania:						
Australia and Tasmania	\$11,515,413	\$13,434,331	\$11,186,668	\$29,001,147*	\$25,662,313	\$28,280,661
New Zealand .....	.....	4,201,206	3,040,168	.....	6,291,319	6,502,362
All other	79,944	104,095	66,208	.....	.....	.....
French Oceania	835,112	534,867	543,193	.....	.....	.....
Philippine Islands	12,337,927	11,510,438	10,164,223	5,459,444	8,661,424	11,461,732
Total Oceania	\$24,769,658	\$29,785,393	\$25,054,866	\$35,141,751	\$41,186,193	\$46,789,201
Africa						
British Africa:						
West	\$7,407	\$161,885	\$91,271	\$1,857,940	\$2,061,058	\$2,085,046
South	981,808	1,573,940	1,760,350	11,704,668	7,689,759	7,847,045
East	717,507	916,552	655,534	523,875	745,505	354,637
French Africa	743,582	836,037	.....	1,334,033	1,301,319	1,545,145
Portuguese Africa	58,056	93,591	.....	2,420,891	2,855,502	5,463,949
Turkey in Africa: Egypt	9,391,621	16,615,706	12,863,061	1,163,128	1,225,077	2,126,383
Total Africa	\$12,628,735	\$21,127,464	\$16,290,075	\$19,562,350	\$16,511,026	\$20,340,565
Grand total.....	\$1,226,562,446	\$1,434,421,425	\$1,194,341,792	\$1,743,864,500	\$1,880,851,078	\$1,860,773,346

*Includes New Zealand.

The tables which follow show the movements in the principal articles forming the imports and exports of the United States for 1907 and 1908. The articles enumerated form more than three-fourths of the total value of the imports and exports of the country:

IMPORTS INTO, AND DOMESTIC EXPORTS FROM,
THE UNITED STATES OF PRINCIPAL ARTICLES
FOR THE FISCAL YEARS
1907 AND 1908

Articles	Imports	
	1907	1908
Chemicals, drugs and dyes.....	\$82,997,914	\$73,237,033
Coffee	78,231,902	67,688,106
Cotton, manufactures of.....	73,704,636	68,379,781
Earthen, stone and china ware.	13,706,790	13,427,969
Fibres:		
Manufactures of	64,714,298	54,467,572
Unmanufactured	42,239,358	35,493,083
Fish	12,335,988	12,292,770
Fruits, including nuts.....	35,867,160	37,354,742
Furs, and manufactures of.....	21,884,034	15,918,149
Hides and skins, other than fur skins	83,206,545	54,770,136
India rubber and gutta-percha, crude	60,206,418	37,753,266
Iron and steel, and manufactures of	40,587,865	27,607,909
Jewelry and precious stones....	44,247,549	18,386,412
Leather, and manufactures of..	20,393,533	14,127,347
Oils	17,068,777	18,282,393
Silk:		
Manufactures of	38,653,251	32,717,668
Unmanufactured	71,411,899	64,546,903
Spirits, wines and malt liquors.	22,104,236	20,771,904
Sugar	92,806,253	80,258,147
Tea	13,915,544	16,309,870
Tin, in bars, blocks or pigs....	38,117,459	25,296,061
Tobacco, unmanufactured	26,055,243	22,870,328
Wood, and manufactures of.....	42,969,941	43,527,982
Wool:		
Manufactures of	22,321,460	19,387,978
Unmanufactured	41,534,028	23,664,938

Articles	Exports	
	1907	1908
Agricultural implements	\$26,936,456	\$24,344,398
Animals	41,203,080	34,101,289
Breadstuffs	184,120,702	215,260,588
Cars, carriages and other vehicles	20,513,407	22,072,902
Chemicals, drugs, dyes and medicines	20,373,036	20,873,155
Coal	34,727,762	39,355,750
Copper, manufactures of.....	94,762,110	104,064,580
Cotton:		
Manufactures of	32,305,412	25,177,758
Unmanufactured	*481,277,797	*437,788,202
Fertilizers	8,596,711	10,970,931
Fish	5,536,856	5,685,916
Fruits, including nuts.....	17,588,432	14,338,864
Iron and steel, and manufactures of, not including ore...	181,530,871	183,982,182
Leather, and manufactures of	45,476,969	40,688,619
Mineral oils	84,855,715	104,116,440
Meat and dairy products.....	202,392,508	192,802,708
Naval stores	21,686,752	21,641,599
Oil cake and oil cake meal..	25,738,471	21,064,974
Paper and manufactures of..	9,856,733	8,064,706
Paraffin and paraffin wax....	9,030,992	8,740,929
Seeds	10,094,609	8,683,688
Tobacco:		
Manufactures of	5,735,613	4,736,522
Unmanufactured	33,377,398	34,727,159
Vegetable oils	19,550,514	19,633,967
Wood, and manufactures of..	83,349,575	81,521,305

*Includes linters. †Not including corn oil cake.

INTERNAL COMMERCE. The commercial movements in the field of domestic commerce during the calendar year 1908, as reported by

the Bureau of Statistics of the Department of Commerce and Labor, discloses to some extent the effects of the crisis of October, 1907, and the general depression following the financial disturbance of that month. These effects are most clearly shown by the movements of coal, iron and lumber, the chief raw materials used by the building trades and the railroads. The depression in the building trade continued during the greater part of the year, while the additions during the year to the railroad mileage of the country amounted only to about 3200 miles, a total smaller than for any year since 1897.

The movements of live stock, grain and cotton show more normal totals, partly in response to the heavier export demand. The aggregate receipts of live stock at seven primary markets for the year were 42,731,306 head, which was in excess of the corresponding figures for 1907, which were 40,218,455 head. The combined grain receipts for the calendar year at fourteen primary markets were 747,399,209 bushels, which was considerably below the receipts for 1907, which were 800,824,781 bushels. The decline in the total is due mainly to a loss of about 50,000,000 bushels in the corn receipts, only partially compensated by heavier wheat receipts.

Lumber shipments from the Lake ports during the year were 944,742,000 feet, which was thirty-two per cent. below the total recorded for 1907. This decrease, however, was due as much to the gradual exhaustion of the lumber supply in the territory bordering on the lakes as to the general business depression.

The quantities of coal and coke moved over the leading Eastern coal carrying roads in practically all cases show a decided decrease for the year when compared with the corresponding figures for 1907. The decrease was heavier in the case of coke, which may be said to be primarily a raw material for use in the iron industry. The shipments of coke over eight leading Eastern railways were 16,046,161 tons. The bituminous coal tonnage of the same roads was 90,766,603 tons, which was sixteen per cent. below the preceding year's total.

The effects of the industrial depression were felt least by the anthracite coal trade, the shipments during the year of hard coal from the Eastern producing regions being 64,665,014 gross tons, which was only three per cent. below the unusually large 1907 shipment. Coal operations in other sections of the country, such as Ohio, Illinois and Missouri, show equal if not heavier shrinkages.

Coastwise shipments of coal from New York, Philadelphia, Baltimore, Newport News and Norfolk, during 1908, included 40,507,486 gross tons, as compared with 44,016,113 gross tons reported for the preceding year. Domestic iron ore shipments by lake during the year from Lake Superior and Michigan ports totaled 24,939,185 gross tons, compared with 40,727,972 gross tons reported for the season of 1907. The decrease in the ore shipments corresponds to a curtailment in the output of coke anthracite pig iron during the year. The reduced demand for iron material by the railroads is seen in part from the smaller number of cars and locomotives ordered by American railways during the past two years. There were ordered only 1182 in 1908 as compared with 3482 in 1907 and 5642 in 1906. The partial cessation of building operations in the larger cities of the country which preceded the crisis of October, 1907, was another im-

portant factor in depressing the iron situation. The volume of lake traffic during the 1908 season as measured by domestic shipments of merchandise from various lake ports was 60,518,024 net tons, compared with 83,506,991 in 1907. The heavy decrease in the year's shipments was due mainly to the decrease in the shipments of iron ore.

The vessel movement on the Great Lakes during the year also shows a decrease as compared with figures for 1907. The total departures in the domestic trade numbered 65,624 vessels of 83,378,323 net tons, compared with 73,769 vessels of 99,166,409 tons reported for the calendar year 1907.

SHIPPING AND NAVIGATION. On June 30, 1908, the merchant marine of the United States, including all kinds of documented shipping, numbers 25,425 vessels of 7,365,445 gross tons. On June 30, 1907, it numbered 24,911 vessels of 6,938,794 gross tons. The geographical distribution in 1908 was as follows Atlantic and Gulf ports, 17,241, gross tons, 3,500,932; Porto Rico, 72, gross tons, 5,619; Pacific coast, 3195, gross tons, 943,354; Hawaii, 45, gross tons, 18,960; Northern Lakes, 3172, gross tons, 2,729,169; Western Rivers, 1700, gross tons, 167,411. During the fiscal year 1908, 1,457 vessels of 614,216 gross tons were built and documented as compared with 1,157 vessels of 471,332 gross tons for the fiscal year 1907. Of the total for

1908, 450,017 gross tons were built of steel. This steel construction is by far the largest in the history of shipping construction in the United States.

EDUCATION. According to the report of the Commissioner of Education for the school year ending June, 1907, there were at that date 24,262,936 children of school age in the United States. Of these, 12,225,149 were boys, and 12,037,787 were girls. There were enrolled in the common schools 16,820,386 different pupils of all ages. This was 69.88 per cent. of the school population (5 to 18 years). The average daily attendance in 1906-07 was 70.26 per cent. of the common school enrollment, or 11,817,834. The number of teachers employed by the State school system in 1906-07 was 475,238, of which the male teachers numbered 105,773, or only 23.6 per cent. of the total number. The average monthly salaries of teachers in 1906-07 was \$50.17. The average salary of men in those States making a sex classification was \$56.10, and of women, \$43.67. The total revenues for school purposes, excluding balances from previous years and bond sales, was \$343,602,738. The total expenditure, excluding payments of bonds, was \$330,680,801. See EDUCATION IN THE UNITED STATES; AGRICULTURAL EDUCATION; PROFESSIONAL SCHOOLS.

COINAGE. The following tables indicate the amount and character of the coinage executed in the United States in the calendar years 1907-8:

Denomination	1907		1908	
	Pieces	Value	Pieces	Value
Double eagles	4,832,831	\$96,656,620.00	5,463,160	\$109,263,200.00
Eagles	2,683,879	26,838,790.00	1,481,336	14,813,360.00
Half-eagles	1,514,192	7,570,960.00	1,229,886	6,149,430.00
Quarter-eagles	336,448	841,120.00	565,057	1,412,642.50
Total gold	9,367,350	\$131,907,490.00	8,739,439	\$131,638,632.50
Half-dollars	11,651,175	\$5,825,587.50	11,639,373	\$5,819,686.50
Quarter-dollars	15,596,575	3,899,143.75	17,048,545	4,262,136.25
Dimes	34,537,045	3,453,704.50	23,099,545	2,309,954.50
Total silver	61,784,795	\$13,178,435.75	51,787,463	\$12,391,777.25
Five cents	39,214,800	\$1,960,740.00	22,686,177	\$1,134,308.85
One cent	108,138,618	1,081,386.18	33,442,987	334,429.87
Total minor	147,353,418	\$3,042,126.18	56,129,164	\$1,468,738.72
Total coinage	218,505,536	\$148,128,051.93	116,656,066	\$145,499,148.47

The following table shows the general stock of money in the United States at the end of calendar year 1908, and the money in circulation 1907-8:

	General stock of money in the United States	†In Treasury	Money in circulation	
	Dec. 31, 1908	Dec. 31, 1908	Dec. 31, 1908	Dec. 31, 1907
Gold coin (including bullion in treasury)	\$1,653,881,807	\$176,291,097	\$619,317,841	\$648,573,173
*Gold certificates	56,412,360	501,860,509	706,612,349	706,612,349
Standard silver dollars	563,963,812	4,219	72,443,593	91,312,428
*Silver certificates	20,378,201	470,837,799	467,731,347	467,731,347
Subsidiary silver	153,226,112	18,162,747	135,063,365	134,980,859
Treasury notes of 1890	4,596,000	6,811	4,589,189	5,469,056
United States notes	346,681,016	10,258,047	336,422,969	345,275,422
National bank notes	677,068,165	25,287,727	651,790,438	679,034,664
Total	\$3,399,116,912	\$306,801,209	\$3,092,315,703	\$3,078,989,298

Population of the United States January 2, 1909, estimated at 88,209,000; circulation per capita, \$35.06.

*For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the treasury, and is not included in the account of money held as assets of the government.

†This statement of money held in the treasury as assets of the government does not include deposits of public money in national bank depositories to the credit of the Treasurer of the United States, amounting to \$112,126,477.57.

For a full statement of assets see Public Debt Statement.

THE NATIONAL DEBT. The amount and classification of the United States national debt at the end of the calendar years 1907 and 1908 were as follows:

	Dec. 31, 1907	Dec. 31, 1908
Interest-bearing debt at from 2 to 4 per cent., and redeemable from 1907 to 1925, inclusive.....	\$898,210,050.00	\$912,900,850.00
Debt on which interest has ceased since maturity..	5,580,386.26	3,448,935.29
Debt bearing no interest.....	399,760,386.38	400,501,382.78
Gross debt	\$1,303,550,821.64	\$1,316,851,168.04
Cash balance	269,519,990.96	169,501,417.34
Net debt	\$1,034,030,830.68	\$1,147,349,750.70

REVENUES AND EXPENDITURES. The following tables, compiled from figures given by the Secretary of the Treasury, shows the total revenues and the total expenditures of the Federal government for the fiscal years 1907 and 1908:

REVENUES

Source	1907	1908
Customs	\$332,233,362.70	\$286,113,130.29
Internal revenue	269,666,772.85	251,711,126.70
Sale of public lands.....	7,878,811.13	9,731,560.23
Miscellaneous sources.....	53,361,387.37	53,570,301.31
Total exclusive of postal revenue	\$663,140,334.05	\$601,126,118.53
Postal revenue	183,585,005.57	191,478,663.41
Total revenue	\$846,725,339.62	\$792,604,781.94

EXPENDITURES

	1907	1908
Civil and miscellaneous..	\$180,244,531.84	\$175,420,408.57
War department	122,576,465.49	175,840,452.99
Navy department	97,128,469.36	118,037,097.15
Indians	15,163,608.41	14,579,755.75
Pensions	139,309,514.31	153,892,467.01
Interest on public debt..	24,481,158.34	21,426,138.21
Total expenditure exclusive of postal.....	\$678,903,747.75	\$659,193,319.68
Postal expenditures	183,585,005.32	191,473,663.41
Total expenditures.....	\$762,488,753.32	\$850,674,983.09
Surplus revenue	\$84,236,586.30	\$58,070,201.15

The revenues and expenditures for the fiscal years ending June 30, 1909, are estimated by the Secretary of the Treasury as below:

REVENUES

Customs.....	\$270,000,000.00
Internal revenue.....	250,000,000.00
Miscellaneous.....	62,000,000.00
Postal revenue.....	206,796,956.00
Total revenue.....	\$788,796,956.00

EXPENDITURES

Civil establishment.....	\$153,000,000.00
Military establishment.....	128,000,000.00
Naval establishment.....	125,000,000.00
Indian service.....	17,000,000.00
Pensions.....	161,000,000.00
Public works.....	90,000,000.00
Interest on public debt.....	22,000,000.00
Postal service.....	206,796,956.00
Total expenditure.....	\$902,796,956.00
Surplus.....	\$114,000,000.00

*Deficit.

ARMY. On July 1, Luke E. Wright, formerly United States Ambassador to Japan, became Secretary of War to succeed William H. Taft, who resigned to become the Republican candidate for President. The report of the Adjutant-General for the fiscal year ending June 30, 1908, shows the authorized strength of the army on that date as 4,120 officers and 71,735 enlisted men in the regular army, including 31 officers and 574 enlisted men in the Porto Rico Regiment, which became a part of the regular army on June 30, 1908; and 166 officers, 5,508 enlisted men in the Philippine Scouts: a total authorized force of 4,286 officers and 77,243 enlisted men. These figures represent an increase of 92 officers and 2,185 enlisted men in the regular army and 50 officers, and 300 enlisted men of the Philippine Scouts over the authorized strength of June 30, 1907. The increase in the authorized number of commissioned officers was the result of an increase in the medical department, directed by act of Congress, and the addition on July 10, 1908, of a number of officers of the Coast Artillery Corps, also in accordance with an act of Congress. The only large increases made during the year in the authorized number of enlisted men were the addition of 960 enlisted men to 96 companies of infantry stationed in the Philippines, and an increase of 300 in the number of Philippine Scouts. The authorized strength of the military establishment on October 15, 1908, was 4,473 officers and 83,251 enlisted men. On October 15, 1908, the actual strength of the military establishment was 4,116 officers, 68,512 enlisted men in the regular army, including 24 officers, 577 enlisted men in the Porto Rico Regiment and 114 officers, 5,424 enlisted men in the Philippine Scouts, making a total of 4,230 officers, and 73,936 enlisted men, not including the enlisted men in the hospital corps. While there was an increase in the authorized enlisted strength of the army there was a much larger increase in the actual strength, which was only 9,315 enlisted men short of the authorized strength on October 15, 1908, as against a deficiency of 20,535 enlisted men on October 15, 1907. The strength of the army by branches of service on October 15, 1908, was as follows: General officers, 21; staff corps and departments, 849 officers, 2,259 enlisted men; engineers, 171 officers, 1,808 enlisted men; cavalry, 760 officers, 12,756 enlisted men; field artillery, 215 officers, 4,777 enlisted men; coast artillery corps, 564 officers, 16,633 enlisted men; infantry, 1,536 officers, 25,405 enlisted men; miscellaneous, 4,874 enlisted men; Philippine Scouts, 114 officers, 5,424 enlisted men.

The geographical distribution of the Army on October 15, 1908, is shown in the following table:

Geographical Distribution	Officers	Enlisted men	Total
In the United States.....	3,016	52,633	55,649
In Alaska	47	1,099	1,146
In the Philippines:			
Regular Army	675	12,093	12,768
Philippine Scouts	114	5,424	5,538
In Porto Rico.....	28	604	632
In Cuba	268	4,853	5,121
In Hawaii	15	254	269
Troops en route and officers at other foreign stations	67	492	559
Total	4,230	77,457	81,687

The foregoing table includes 3,521 enlisted men of the Hospital Corps, distributed as follows: United States, 2,552; Alaska, 44; Philippines, 667; Porto Rico, 21; Cuba, 216; Hawaii, 13; en route, 8. It also includes 187 first lieutenants of the Medical Reserve Corps on active duty.

The total number of enlistments during the fiscal year ending June 30, 1908, exclusive of the Hospital Corps and Philippine Scouts, was 41,463. Of this number 11,743 were reenlistments and 29,720 were original enlistments. The percentage of native born white and colored among the original enlistments was 88. The enlistment was a great increase over the preceding period in 1907, when the total enlistments numbered 20,410, of which 7,384 were reenlistments and 13,026 were original enlistments. In making the enlistments for the army the recruiting officers examined 152,141 men, of whom 109,721, or about 22 per cent. of the whole number, were rejected as lacking in either mental, moral, or physical qualifications. During the fiscal year 1908, 4,388 Filipinos were enlisted for the Philippine Scouts, as compared with 515 for the preceding fiscal year. Of the total number, 1,899 were original enlistments and 2,489 were reenlistments.

There was a very satisfactory falling off in the number of desertions during the fiscal year 1908, the percentage being 4.6 per cent. of the whole number of enlisted men in service as compared with 5.6 per cent. during the preceding fiscal year. This condition is attributed to the re-establishment of the United States Military Prison at Fort Leavenworth, Kansas, early in 1906; more strenuous efforts to apprehend deserters and make their punishment and apprehension a certainty; and changes in the method of making enlistments whereby recruits are enlisted at recruiting depots instead of general recruiting stations. Losses from the army from all causes during the fiscal year were 31,707, of whom 127 were officers and 31,580 were enlisted men. The greater part of these losses among the men was the result of discharge upon expirations of terms of service. The Secretary of War in his annual report notes a steady and progressive improvement in the health of the army. The improvement has been marked in the case of typhoid fever, tuberculosis, and malaria.

The army was engaged in no hostile operations during the year. In the Philippine Islands conditions were generally peaceful and no disturbances of consequence occurred. In the Department of Mindanao there were a few minor cases of lawlessness, but nothing of a serious nature. On October 15, 1908, there were 268 officers and 4,853 enlisted men in Cuba. In addition there were 50 officers and 832 enlisted men

of the Marine Corps serving with the army of Cuban pacification. No occasion arose during the year for resort to force.

The fortification of sea coast defenses, inaugurated in 1886 and proceeding under the plan of the National Coast Defense Board of 1906, was well advanced at the close of the fiscal year 1908. Eighty-five per cent. of the heavy guns and mortars and 72 per cent. of the rapid fire guns, called for under the complete projects, were mounted. The Secretary of War points out the need of additional officers. He recommends the favorable consideration of a bill pending in Congress, providing for the addition of 612 officers to the army. The total expenditures for the Department of War, including civil establishment, military establishment, public works, and miscellaneous, for the fiscal year ending June 30, 1908, were \$130,706,447.99. Of this amount, \$81,203,958.65 was expended on the military establishment. The estimates for the fiscal year ending June 30, 1909, are \$177,926,862.84.

In accordance with the instructions of the Secretary of War, issued to carry into effect orders and suggestions of the President, published May 14, 1908, annual physical examinations for officers were provided, preliminary to a physical test to be made annually to determine the fitness of all field officers of the army for active operations, under regulations to be prescribed by the Secretary of War, in the case of all field officers except those of the coast artillery. This test was the ability to make a daily march of not less than 30 miles for three days in succession under conditions suitable to the making of forced marches in active field operations. These tests were carried on during the year in the various military departments. The endurance riding tests for mounted officers ordered by the President in 1907 were continued at designated places in 1908.

On November 9, the Army War College was formally opened at Washington. This institution is designed to do for the army the same sort of work as is done for naval officers by the Naval War College.

A great deal of attention was attracted during the year by the attempt, finally successful, to place on the retired list Col. Wm. F. Stewart, of the Coast Artillery. As the result of disputes with civilians and others during his command at various posts, Col. Stewart was pronounced by the officials of the War Department temperamentally unfit to command troops. In Sept., 1907, Colonel Stewart was on duty at Fort Barrancas, Fla. He there became involved in a dispute with a civilian employee, and after investigation the general staff of the army recommended that Col. Stewart be asked to apply for retirement. This recommendation was approved by President Roosevelt. The alternative was offered of voluntary retirement or transfer to an ungarrisoned post. Col. Stewart declined to request retirement, unless he should be placed on the retired list as a Brigadier-General. This was refused and Col. Stewart was deprived of command at Fort Barrancas and sent to Fort Grant, Arizona, an ungarrisoned post. After remaining there several months Col. Stewart applied for change of station, and it was decided to send him to St. Francis Barracks, St. Augustine, Fla., but a protest was received from the Florida senators, and Col. Stewart was again sent to Fort Grant. Senator Rayner, of Maryland, of which State Col. Stewart was a native,

denounced the action of the President and the General Staff and introduced a resolution directing the President to convene a court of inquiry and investigate the case. This resolution was referred to the Committee on Military Affairs, which gave it no attention. In August, 1908, Col. Stewart was ordered from Fort Grant to Fort Huachuca in Arizona, to take the physical test for army officers prescribed by President Roosevelt. He was examined by army officers, who reported that his physical condition would not permit him to take the test, although Col. Stewart protested that the prescribed exercise was no more than he had been taking habitually of his own volition. Col. Stewart was then ordered before the retiring board at Washington, which, on October 10, reported that Col. Stewart was suffering from organic heart disease, which rendered him unfit for active service. Secretary Wright approved the report of the board and recommended that the President place Col. Stewart on the retired list for physical disability incident to the service. This was at once done.

A Board of Medical Scientists, who met at the War Department on December 7 to consider the advisability of immunizing soldiers by vaccination, decided that inoculation as a preventive against typhoid fever had been so thoroughly demonstrated in foreign countries that its efficacy was well established, and the Board recommended that the vaccination method be adopted in the United States army.

It was announced early in December that the date of the withdrawal of the troops from Cuba would be January 28, 1909. (See CUBA.)

NAVY. On Nov. 13, Victor H. Metcalf, of California, resigned as Secretary of the Navy, to take effect on December 1, and Truman H. Newberry, of Michigan, for the last three years Assistant Secretary of the Navy, was appointed in his place.

During 1908 the following battleships were accepted preliminarily and placed in commission: *Mississippi*, 13,000 tons; *New Hampshire*, 16,000 tons; *Idaho*, 13,000 tons; armored cruisers: *North Carolina*, 14,500 tons; *Montana*, 14,500 tons; *South Dakota*, 13,080 tons; scout cruisers: *Chester*, *Birmingham*, and *Salem* (all 3,750 tons); submarine vessels: *Octopus*, with a displacement of 274.4 tons, the *Tarantula*, *Cuttlefish*, and *Viper* (all of 170 tons). Of these vessels the armored cruiser *South Dakota*, and the submarine boats *Tarantula*, *Cuttlefish*, and *Viper*, have been accepted finally.

The following table shows the strength of the United States Navy in the number of vessels and tonnage of 1,000 or more tons and of torpedo boats of more than 50 tons on Nov. 1, 1908:

		Tons
Battleships (10,000 tons and over).....	29	406,146
Coast-defense vessels	11	46,334
Armored cruisers	12	167,445
Cruisers above 6,000 tons.....	5	43,800
Cruisers 6,000 to 3,000 tons.....	20	72,620
Cruisers 3,000 to 1,000 tons.....	14	18,058
Torpedo-boat destroyers	31	17,590
Torpedo boats	32	5,615
Submarines	19	3,860
Total	173	770,468

The following battleships were under construction at the end of the fiscal year 1908: *Michigan* and *North Carolina* (16,000 tons); *Delaware* and *North Dakota* (20,000 tons); *Florida* and

Utah (21,825 tons). There were also under construction fifteen torpedo boat destroyers with a total tonnage of 10,920 tons and five fleet colliers with a tonnage of 58,770. Of the vessels under construction, *South Carolina* and *Michigan* were under contract to be completed in December and November, 1908, respectively. Two battleships were authorized by act of Congress May 13, 1908. (See CONGRESS.) These are to be named the *Utah* and the *Florida*. The *Utah* is to be built by the New York Shipbuilding Company at a cost of \$3,946,000 and the vessel is to be completed in thirty-two months from the date of contract. The *Florida* is to be built at the Navy Yard, New York. Bids were opened on Nov. 2, 1908, for the construction of eight submarine torpedo boats, authorized by act of May 13, 1908, but contracts for these bids had not been made at the end of the year.

The personnel of the Navy on November 20, 1908, in active service, was as follows: Flag officers, 27; captains and commanders, 202; other line officers, 876; medical officers, 318; pay officers, 201; other staff officers, 147; midshipmen at sea, 333; midshipmen at Naval Academy, 811; warrant officers, 597; enlisted men, 42,400; marine officers, 267; enlisted marines, 9,579.

The Secretary of the Navy in his annual report strongly recommended the creation of the rank of vice-admiral. In the present naval organization a gap exists between the position of rear-admiral and admiral and therefore one of the rear-admirals of the active list must necessarily be assigned to command of the fleet. Under these conditions this officer finds himself at almost every port of call in an unreasonable position of subordination to foreign naval officers of the rank of vice-admiral. This condition was especially apparent during the cruise of the fleet in the Pacific Ocean. It is recommended that at least two officers of the rank of vice-admiral should be provided. The Secretary of the Navy also recommends changes in the procedure in the cases of summary court martial, especially as regards the provision for forfeiture of pay.

On Nov. 12th an order was signed by President Roosevelt, withdrawing marines from duty on board vessels of the navy. This order was the culmination of a long standing struggle on the part of sea-going officers against the presence of marines on board vessels. By the terms of this executive order the following duties are assigned to the United States marine corps: First, to garrison the different navy yards and naval stations both within and beyond the continental limits of the United States; second, to furnish the first line of the mobile defenses of naval bases and naval stations beyond the continental limits of the United States; third, to man such naval stations and to aid in manning if necessary such other defenses or navy bases and naval stations beyond the continental limits of the United States; fourth, to garrison the Isthmian Canal Zone, Panama; fifth, to furnish such garrisons and expeditionary forces for duty beyond the seas as may be necessary in time of peace.

Preliminary drafts were prepared in November by Secretary Newberry and approved by President Roosevelt, prescribing a walking test for officers of the navy. This test will apply to all line officers below the rank of rear-admiral and all staff officers below the rank of captain. The principal test will be a fifty-mile walk to be

made in three successive days, but officers who prefer may have the option of taking the 90 miles in a three days horseback ride or a bicycle ride of 100 miles in three days. These physical tests will be preceded and followed by a medical examination similar to that in the army. The test will be required of every officer once in every calendar year.

CRITICISM OF THE NAVY. The criticism on the construction of naval vessels and naval organization, begun in 1907 by Henry Reuterdaahl, a marine artist, and taken up by others, was vigorously carried on during 1908. In February, Rear-Admiral Converse issued a statement which was regarded as an official reply to some of the criticisms made by Mr. Reuterdaahl and other writers for the press. Admiral Converse confined himself to problems of construction. He admitted that imperfections existed in the construction of our war ships, but insisted that they exist also in a relatively greater degree in other navies. He affirmed that naval construction is not an exact art, that every new ship should be better than its predecessors, and that the oldest ships in the service should be exempt from the kind of criticism which may justly be applied to ships new or fairly planned. He took up the criticisms in detail and gave dates and figures to sustain the position of the Board of Construction on points attacked. These were chiefly charges that on vessels of the United States navy, the free-board (the distance between deck and water line) was so low as to hamper the efficiency of vessels; that the position of the armor belts was open to serious criticism; and that fleet drill had been impossible hitherto, because the navy had not a complete fleet of two squadrons of eight battleships. Admiral Converse admitted that the ammunition hoists on the ships had been wrongly designed and asserted that improvement had been made or was being made on our ships. Largely as a result of the criticisms noted above, the Senate Naval Committee held hearings in March in which many well known naval officers gave testimony. Rear-Admirals Remy and Goodrich, Commanders Key and Winslow, and Lieutenant White testified that the armor belt in our ships was placed too low or at least that it does not extend high enough. On the other hand, testimony was given by members of the Board of Construction that these defects were not serious. Especially severe strictures had been made by Commander Albert L. Key in an official communication on the design of the battleship *North Dakota*. The "Newport Conference" summoned by President Roosevelt, met on July 22, and navy officers were invited to participate in a free discussion and criticism of the design of the new battleships. While the result of the deliberations did not indicate any radical defects in the new battleships of the United States Navy, yet there were adopted certain important recommendations looking to their improvement. These involved a change in the position of the armored belt, increased protection for steering engines, flues, and other important parts, the higher mounting of the broad-side guns, refrigeration for the magazines, two instead of one fire control mast, the lowering of the smoke stacks and ventilators, and the raising of the foremost of the two after turrets. On Dec. 2, Washington L. Capps, Chief of the Bureau of Construction and Repair in the Navy Department, made in his annual report a vigor-

ous reply to the criticisms. He asserted that the criticisms of Commander Key were made 18 months after formal approval of the design for the battleship and that Commander Key had been for a portion of the time on duty with the General Board and was, in addition, assigned to the shipyard where the *North Dakota* was building on Nov. 25, 1907. He pointed out also that although this officer testified before the Senate Naval Committee he made no reference to the alleged defects in the *North Dakota* design. Mr. Capps stated that the changes recommended in the design of the *North Dakota* as a result of the deliberations of the Newport conference were of a comparatively minor character, and that the action taken by the conference testified to the general excellence of the design of this vessel.

On Feb. 20, a resolution was introduced into the House of Representatives by Representative Lilley, of Connecticut, providing for the appointment of a committee to investigate the alleged lobbying methods of the Electric Boat Company of New Jersey before the House Committee on Naval Affairs. A special committee was appointed to investigate these charges, which, among others, accused the Electric Boat Company of using unfair and dishonest methods in obtaining contracts for submarine boats. After a careful investigation into these charges they were dismissed as being without foundation.

BUREAU REORGANIZATION. The organization of the bureaus of the Naval Department was severely criticised during the year, and on the accession of Secretary Newberry plans were at once begun for the reorganization. On Dec. 21 Mr. Newberry's contemplated plan was made public. This plan increases the membership of the General Board and of the Board of Construction and provides for greater coöperation between the boards. The navy regulations were amended so as to redistribute the work of battleship designing in such a way as to avoid archaic and unbusinesslike methods. The increased membership of the Board of Construction and the personnel of the new board was as follows: Rear-Admiral George A. Converse, retired, president; Rear-Admiral Newton E. Mason, Rear-Admiral William S. Cowles, retired, Chief Constructor Washington L. Capps, Rear-Admiral T. C. McLean, Captain William W. Kimball, Captain Sidney A. Staunton, and Captains I. S. K. Reeves. The new members are: Rear-Admiral McLean, Captain Reeves, Captain Kimball and Captain Staunton. In addition to increasing the members of the Board of Construction, Mr. Newberry amended the naval regulations so that the work of the Board will be enlarged to a considerable degree. He changed the provision which limited the Board to designing and equipping new vessels so that hereafter the Board would perform new duties assigned to it by the Secretary of the Navy.

ATLANTIC FLEET, WORLD CRUISE. The most important event in the United States Navy during 1908 was the practice cruise of the Atlantic fleet of 16 battleships around the world. When it was made known that the fleet was to be sent to the Pacific, there was a great difference of opinion as to the advisability of the transfer. Some critics declared that the relations between the United States and Japan were so strained that Japan would consider it a menace; others assumed that it was a permanent strategic move, and that the fleet would remain

in the Pacific. These critics failed to see that no foreign nation could properly take exception to a practice cruise of American men-of-war along the coasts of the United States, whether in the Atlantic, or in the Pacific, even if both coasts be not continuous. The fleet left Hampton Roads on Dec. 16, 1907, after being reviewed by the President. A flotilla of four destroyers left the same port on Dec. 2, also for the Pacific. The fleet stopped at various South American ports, passed through the Straits of Magellan, and reached San Francisco on schedule time, without a mishap on the way. The continuation of the voyage from San Francisco was due to invitations from Australia, New Zealand, China, and Japan. The fleet left San Francisco on July 7, 1908; Manila, Dec. 1, 1908; and, on Dec. 31, 1908, was on the way from Colombo to Suez; it was to be reviewed by President Roosevelt at Hampton Roads on Feb. 22, 1909. The whole cruise will have lasted one year, two months, and six days; the distance traveled being about 42,227 miles. The ports of five continents were included in the itinerary; and the voyage naturally divided itself into three parts. The first part, from Hampton Roads to San Francisco, was actually 14,441 nautical miles. The second, from San Francisco to Manila by way of the Hawaiian Islands, New Zealand, Australia, and Japan, approximated 16,218 miles. The third, or homeward bound part, from Manila to Hampton Roads, by way of India, the Suez Canal, Mediterranean ports, and Gibraltar, was about 11,568 miles, not including the side calls at Mediterranean ports. The value of this cruise to the Navy was enormous. The fleet not only made all needed repairs; but increased the steaming efficiency through competition in daily consumption of coal. Drills were carried out regularly on the long sea passages; tactical exercises were carried out as time permitted; and even target practice was not omitted. Away from the distractions and attractions of shore leave, home, and navy yards, it enabled officers and men to acquire the sea habit, and inevitably resulted in the development of a strong esprit de corps. And the gain on the administrative side was also great, the solution of the various problems relating to supplies giving valuable data for future reference.

POST OFFICE. The report of the Postmaster General for the fiscal year ending June 30, 1908, shows the total receipts of the Post Office Department for that period as \$191,478,663.41, while the expenditures were \$208,351,886.15, leaving a deficit for the year of \$16,873,222.74. This deficit is the largest in the history of the Post Office Department. The deficit in 1907 was \$6,653,282.17. The great increase in 1908 is due mainly to an increase in the salaries of rural carriers, post office clerks, railway mail clerks, and other employees of the department. Had it not been for these increases the deficit would have been but little larger than that of 1907. The appropriations for the fiscal year 1909 were \$222,960,892, and it is estimated that the deficit at the end of that period will again be over \$16,000,000. As in his report for the fiscal year 1907, the Postmaster General recommends the appointment of a Director of Posts, who shall be a business man of wide experience and who shall hold office during good behavior.

The rural free delivery system continued to develop rapidly during the year. On Nov. 10, 1908, there were in operation 39,516 routes with

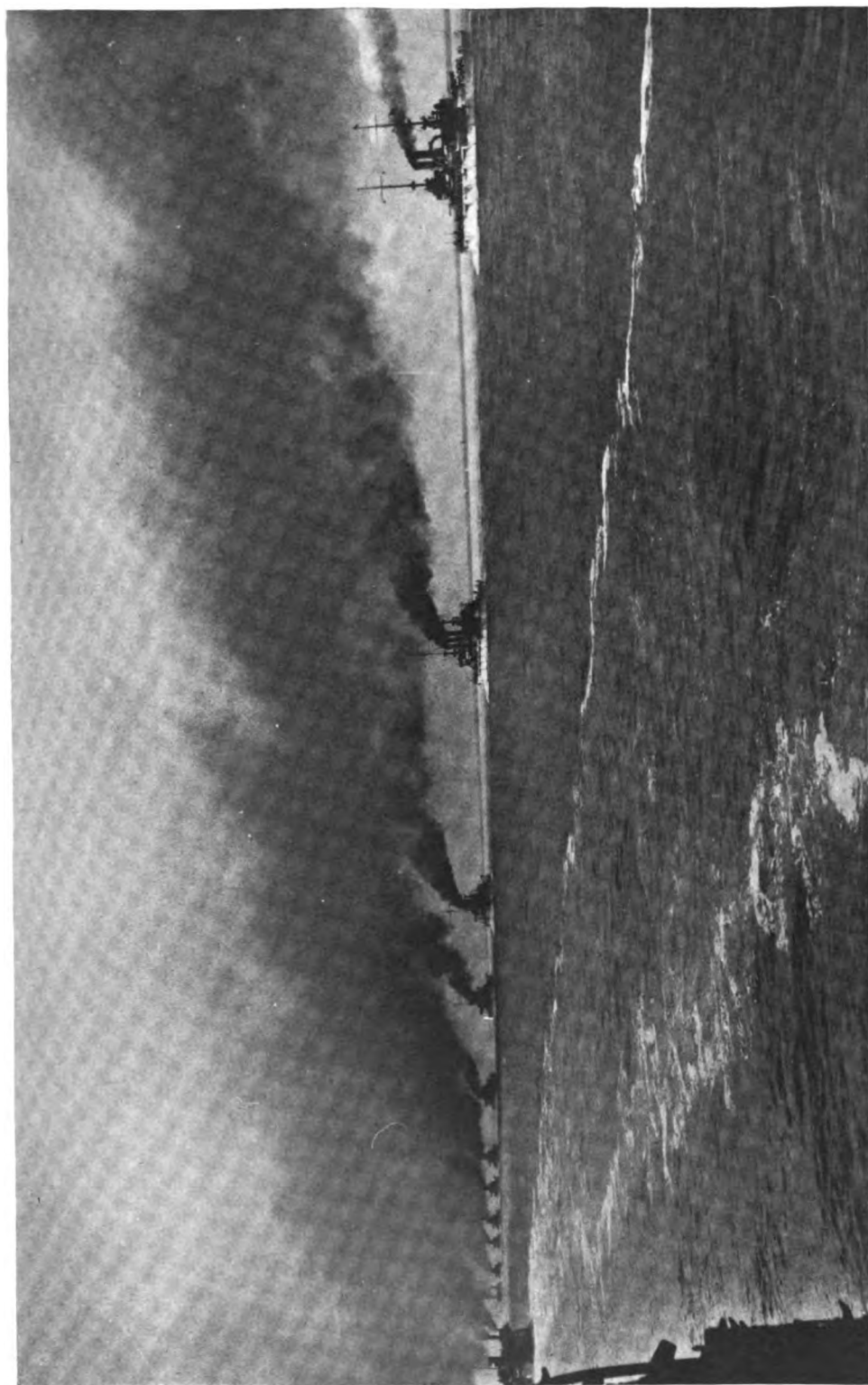
a patronage of more than 18,000,000 people. Free delivery is now established on nearly 1,000,000 miles of routes throughout the country. The expenditure for the maintenance of the rural free delivery system for the fiscal year 1908 was \$34,361,463. The Postmaster General advocates the establishment of a limited parcels post composed entirely of rural free delivery routes. He states that this would enable farmers to have small parcels delivered at their gates, to live better, and to obtain more easily the necessities of life. The increased consumption would in turn increase the business of the local merchant and would benefit jobbers by the additional orders transmitted through commercial travelers.

The establishment of postal savings banks is urgently recommended in the Postmaster General's report. He asserts that it would be of the greatest value in localities where there are no savings banks or facilities for depositing money. He says, "It has been estimated that altogether fully half a billion dollars not to-day placed in any bank, due to want of opportunity or lack of confidence, might be put back into circulation through the agency of postal savings banks." This service, he points out, would operate principally in territory not now covered by private enterprise.

New designs for stamps were prepared for engraving during the year. Of these, the one-cent stamps embody the portrait of Franklin and stamps of all other denominations, portraits of Washington. The colors of one- and two-cent stamps will be the same as heretofore, except that the green of the one-cent stamp has been lightened to give a brighter effect. A new special delivery stamp has also been designed to be placed on sale about Jan. 1, 1909.

During the fiscal year 14,119 postmasters were appointed, of whom 2,174 were of the presidential class. The Postmaster General notes a marked improvement in the efficiency of the service due to the policy of retaining postmasters of all grades whose records have been satisfactory. A new salary law went into effect in 1907. Under this law, 15,825 clerks and 19,792 carriers were advanced in salary on July 1, 1907; 1,459 clerks and 1,190 carriers on Oct. 1, 1907; 1,436 clerks and 1,342 carriers on Jan. 1, 1908; and 1,160 clerks and 1,179 carriers on April 1, 1908; the total number of promotions being 19,880 for clerks and 23,503 for carriers. The efficiency of the employees affected has been materially increased as the result of these increases in salary. The free delivery of mails by letter carriers was extended during the year to 92 additional cities. The total number of regular letter carriers in the service on June 30, 1908, was 26,352, a net increase during the year of 1,175. An experiment was tried in Milwaukee with success to collect mail by the use of automobiles. It was found that the same force of collectors could do twice the amount of work under this system as when using horse-drawn vehicles.

On June 30, 1908, the number of railway mail routes in operation was 3,293, with a length of 213,220.47 miles, and an annual travel of 407,799,039.44 miles. The expenditure for railway post office cars for the fiscal year was \$4,681,777.58, being 20.5 per cent. less than the previous year. There were in operation, on June 30, 1908, 508 electric and cable car routes with a length of route of 6,764.77 miles and an annual travel of 11,716,416.26 miles.



Photograph by Underwood & Underwood, New York

ARRIVAL OF THE ATLANTIC BATTLESHIP FLEET AT PORT PHILLIP'S HEADS, MELBOURNE, AUSTRALIA

In 1908 parcels post conventions were negotiated with the Netherlands, to take effect July 1, 1908; with Uruguay, to take effect July 1; Italy, to take effect Aug. 1; France, to take effect Aug. 15; and Austria, to take effect July 1, 1909. The parcels post rate of 20 cents a pound to Bolivia, Ecuador, Chile, and Peru was reduced to 12 cents a pound. The weight of the parcels post mails despatched from the United States was 968,513 pounds, consisting of 350,484 parcels, and the weight of the parcels post mails received was 584,667 pounds, consisting of 200,660 parcels.

Negotiations were concluded during the year with the Postmaster General of Great Britain, resulting in the establishment of the two cents an ounce rate of letter postage between the United States, and the United Kingdom and Germany.

On May 8, 1907, the agreement between Canada and the United States, which provided for the transmission of second class matter originating in either country and addressed for delivery in the other at the same rate as if addressed for domestic delivery was terminated at the instance of the Canadian postal administration. Under the new arrangement which then went into effect, the postage rate applicable to second class matter in each country addressed for delivery in the other, was one cent for each four ounces or fraction thereof, calculated on the bulk weight of each package and prepaid by stamps affixed. This arrangement did not prove satisfactory and the Canadian administration consented to a restoration of the former privileges in so far as newspapers published six days a week were concerned, and daily publications may now be mailed to Canada at the rate of one cent a pound.

On Dec. 1, President Roosevelt issued an order putting all fourth-class postmasters in States north of the Ohio River and east of the Mississippi in the classified service. This order affects more than 15,000 fourth-class postmasters in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, and Michigan. Appointments to these places will be made hereafter on certification by the Civil Service Commission of names of applicants who have passed an examination for qualification.

It was announced on Nov. 27 that Frank H. Hitchcock, formerly First Assistant Postmaster General, and later Chairman of the Republican National Campaign Committee, would serve as Postmaster General in the Cabinet in the administration beginning March 4, 1909.

PENSIONS. The report of the Commissioner of Pensions for the fiscal year ending June 30, 1908, shows 951,687 pensioners on the rolls at the close of the fiscal year. During that period there were added to the roll 38,882 names and 54,366 names of pensioners were dropped, leaving a net loss for the year of 15,684 names. The net decrease in the number of pensions since Jan. 1, 1905, when the highest number attained, 1,004,196, was carried on the rolls, is 52,509, and the decrease in the pension roll during 1908, 50,676, was caused by the death of pensioners. The total number of survivors of the Civil War on the pension rolls on July 30, 1908, was 620,985, as compared with 644,383 on June 30, 1907, a decrease during the year of 23,353. The number dropped on account of death during the year was 34,333. The death rate of the survivors

of the Civil War during the year was slightly in excess of 5 per cent. and the number dropped on account of death was 3,132 greater than during 1907. At the close of the year there were 7,099 original claims of survivors of the Civil War pending in the Bureau of Pensions. This number added to the number of survivors of the War makes a total of 628,084, who either are pensioners, or have claims pending. Under the act of April 19, 1908, all widows of soldiers and sailors who served in the Civil War on the roll under the act of June 27, 1890, were transferred to the pension roll. The total number of widows of soldiers and sailors of the Civil War receiving pensions in 1908 was 75,515. There still remained on the rolls of the Pension Bureau two pensioners of the Revolutionary War, daughters of Revolutionary soldiers. Both are pensioned by special act of Congress. There were 471 widows of soldiers and sailors of the War of 1812, a decrease of 870 as compared with 1907. Of the Indian Wars there were 1,820 survivors and 3,018 widows drawing pensions. There were 2,932 survivors of the War with Mexico, and 6,914 widows drawing pensions. On June 30, 1908, there were 20,548 invalids drawing pensions on account of the War with Spain, 1,145 widows, and 3,096 mothers. In the regular establishment there were on the pension rolls on the same date 11,786 invalids, 2,580 widows. The annual value of the pension roll at the close of the fiscal year was \$159,495,701, as compared with \$140,850,880 at the close of 1907, a gain of \$18,644,821. The annual value was the amount required to pay all pensioners on the roll at the close of the fiscal year for one entire year, should there be no changes in the rates or the number of pensioners during the year. The increase in the annual value of the roll is due to the large number of certificates issued during the year under the Act of Feb. 6, 1907, and the increase in the rates to widows granted by the Act of April 19, 1908. There were disbursed during the year for pensions \$153,093,086.27, as compared with \$138,155,412.46 in 1907. The amount paid in 1908 is the largest since the organization of the Pension Bureau, with the exception of the fiscal year 1893, when the amount was \$156,906,637.94. The total amount paid for pensions since 1866 is \$3,654,663,365.73. It is estimated that the total amount paid for pensions since the foundation of the government was \$3,751,108,809.96. Of this, the sum paid for pensioners of the Civil War was \$3,533,593,025.95. There were pending on June 30, 1908, 123,483 claims for pensions.

The Act of Feb. 6, 1907, granted pensions to persons who served 90 days or more in the military or naval service of the United States during the Civil War or 60 days in the Mexican War, and were honorably discharged, at the following rates: \$12 per month when 62 years of age; \$15 per month when 70 years of age, and \$20 per month when 75 years of age. From the date of its approval to June 30, 1908, there were filed 431,113 applications for pensions or increase of pensions under this act, and 377,192 certificates were issued to applicants. Of these only 11,223 were original allowances for certificates issued to persons who were not already on the pension rolls. The Act of April 19, 1908, referred to above, provides that the rate of pensions for widows, minor children under the age of 16 years, and helpless minors as defined by the existing laws, now on the roll or here-

after to be placed on the pension roll and entitled to receive a less rate than hereinafter provided, shall be \$12 per month. At the time of the approval of this Act there were 202,577 persons who were entitled to benefit by it. During the fiscal year 22,113 applicants were filed under this law and 4,260 certificates were issued.

During the fiscal year 17 original military bounty land warrants were issued, granting 2,640 acres of land. To obtain this bounty applicants must have served at least fourteen days, or in a battle prior to March 3, 1855, and if in the navy or regular army, must have been in some war in which the United States government was engaged. The total number of bounty land warrants issued to the close of the fiscal year was 598,668, embracing 68,788,950 acres of land.

PATENT OFFICE. The number of applications for patents received during the fiscal year ending June 30, 1908, was 58,527. In addition to these there were 1,091 applications for design patents, 207 for reissue patents, making a total of 59,825 applications for patents of all descriptions filed during the fiscal year, an increase over the number filed in the fiscal year 1907 of 2,303. There were 7,467 applications for registration of trade marks, 810 for labels, and 339 for prints, making a total of 8,616, which is a decrease of 657 from the figures of 1907. The number of patents granted during the fiscal year was 34,003, design patents, 741, reissue patents, 151, trade marks, 6,135, labels, 636, and prints, 279, making a total of 41,952. The expired patents which became public property numbered 24,270. The Congress in 1907 included a provision in the executive and judicial appropriation act, providing for a commission to be created to consist of the Secretary of the Interior, the Commissioner of Patents, and the Secretary of the Smithsonian Institution, to determine which of the models of the Patent Office might be of possible benefit to patentees or of historical value, such models thus selected to be cared for in the new National Museum Building and the remainder of the models to be disposed of by gift, sale, or otherwise before Jan. 1, 1909. In accordance with this provision the Commission was organized on May 29, 1908, and steps were immediately taken to carry out the provisions of the act. The Commissioner of Patents reports that all the models, 157,000 in number, have been removed from the Union Building, some of the historical models have been placed on exhibition in the National Museum, and others, which were deemed of importance as evidence in patent litigation, and to aid examiners and searchers, have been placed in the Patent Office part of the Department of the Interior Building until the completion of the new National Museum Building.

NATURALIZATION. The fiscal year 1908 was the first full fiscal year in which the Act of Congress of June 29, 1906, revising the naturalization laws and establishing a Bureau of Immigration and Naturalization, was in effect. It is the duty of this Bureau to provide for use at the various immigrant stations throughout the United States, books of record where the commissioners of immigration shall cause registry to be made in the case of each alien arriving in the United States, with the necessary information concerning him. It is provided also that the commissioner shall cause to be granted

to such aliens a certificate of such registry. He could confer exclusive jurisdiction over naturalized aliens as citizens upon certain courts comprising practically all courts of record in any State or Territory, including Federal courts. The jurisdiction of all such courts extends only to aliens resident within the respective judicial districts of such courts.

The report of the Chief of the Division of Naturalization for the fiscal year ending June 30, 1908, shows that at the various courts authorized for such purpose, 136,725 declarations of intention were filed; 43,878 petitions for naturalization were filed and 25,517 certificates of naturalization were issued. These figures show an increase over nine months of the fiscal year 1907 of 64,041, or 88 per cent. in the number of declarations filed; 23,076, or 11 per cent. in the number of petitions filed; and 17,782, or 230 per cent. in the number of certificates of naturalization issued. In the State courts the number of declarations filed was 87,041 and in the Federal courts, 49,684. In the State courts 31,729 petitions were filed and in the Federal courts, 12,149; in the State courts 17,985 certificates were issued and in the Federal courts, 7,532. The larger part of the naturalization business was done in the States of New York, Pennsylvania, and Massachusetts. These are the States in which the great bulk of the aliens arriving in this country settle. In the States of Iowa and Kansas there was no naturalization of any kind before the Federal courts, while in Rhode Island there were no transactions in the State courts. The chief of the Bureau recommends that courts appropriate a sufficient sum to enable their force of examiners to be employed and organized to investigate every petitioner and his witnesses and to report the result of such investigations before the petition is heard, through the Division of Naturalization, to the appropriate United States Attorney, in order that the latter may prepare to assure the court at the hearing that the government has no objection to offer to the naturalization of the petitioner, or to oppose the granting of the petition upon the specific ground of objection disclosed by the investigation. He recommends also that the government and the petitioner shall have the right of a review by the United States Circuit Court of Appeals of all orders made in naturalization cases by courts of original jurisdiction.

The work of the Bureau of Naturalization during the fiscal year indicates that the new legislation justified its enactment. It is now known definitely how many persons are naturalized annually and how many refused, with the reasons therefor. The government has complete records of naturalization, and thus in the case of destruction of the court records is protected from illegal claims to citizenship, as the person naturalized is protected from the injuries to his personal and property rights which he might otherwise suffer. There has also been secured a means of punishing frauds and of canceling illegal petition certificates, and thus of preventing violations not only of the naturalization laws, but of the immigration, public land, and other Federal statutes.

FEDERAL JUDICIARY. The composition of the United States Supreme Court remained unchanged during 1908, and the present members with their dates of appointments are as follows: Chief Justice Melville W. Fuller, of Illinois.

1888; John M. Harlan, of Kentucky, 1877; David J. Brewer, of Kansas, 1889; Edward D. White, of Louisiana, 1894; Rufus W. Peckham, of New York, 1895; Joseph McKenna, of California, 1898; Oliver W. Holmes, of Massachusetts, 1902; William R. Day, of Ohio, 1903; William H. Moody, of Massachusetts, 1906.

A large number of important decisions were handed down by the Supreme Court during the year. The most significant of these from a popular standpoint were those relating to railroads and trusts, and these will be found noted under the articles TRUSTS; RAILWAYS; BOYCOTTS; INTERJUNCTIONS; AMERICAN FEDERATION OF LABOR; and in the articles on the States in which the decisions particularly apply.

An important decision relating to the privileges and immunities of citizens of each State in other States is that of *Chambers vs. the Baltimore and Ohio R. R.* In this case the widow of a citizen of Pennsylvania sued in Ohio on a right of action given in Pennsylvania for the death of her husband, alleged to have been killed in Pennsylvania by the negligence of the defendant. In accordance with an Ohio statute which gave its courts jurisdiction in case of such action only when the death was that of a citizen of Ohio, the State Supreme Court denied the plaintiff's right. The United States Supreme Court held that the statute was constitutional and did not deprive citizens of other States of the rights accorded to citizens of Ohio. The opinion points out that since the denial of the right in this case did not depend upon the non-citizenship of the plaintiff, there was no discrimination. In the case of *Adair vs. the United States*, section 10 of the Erdmann Act, passed in 1898 in the hope of preventing railway strikes and providing for voluntary arbitration of labor disputes between the interstate carriers and their employees, was declared unconstitutional. This section made it a misdemeanor for an interstate carrier or its agent to dismiss an employee because of his membership in a labor union. Two grounds were given for the decision, first, that the act deprived the plaintiff, an agent of the railway company, of the liberty guaranteed him by the Fifth Amendment to the United States Constitution; second, that the subject of the section bore no such relation to interstate commerce as to warrant congressional regulation. Another decision relating to interstate commerce was in the case of *Loewe vs. Lawlor*, in which the complaint alleged that the plaintiffs, hat manufacturers, had an extensive interstate trade, and that the defendants had effectively combined to interfere with their production by strikes and to boycott dealers in their products in other States. It was held on demurrer that the cause of action was stated under the Sherman anti-trust law. (See *BOYCOTT*.) An important decision was rendered in the case of *Richardson vs. Shaw* in relation to stocks bought on margins. Securities were bought for the speculator on margin under an agreement permitting the broker to pledge the securities carried in his general loans. Within four months of proceedings of bankruptcy against the broker the securities were redeemed by the broker and delivered to the customer on receipt of the balance of account. The trustee in bankruptcy sued the customer, alleging a preference. The verdict was directed to the defendant on the ground that since no relationship of debtor and creditor existed the transfer

was not preferential. In the case of the *Cleveland Railway Company vs. Cleveland Steamship Company*, in which it was alleged that a pier of the plaintiff's bridge was injured by the defendant's vessel, it was held that the admiralty court did not have jurisdiction since the injury was consummated on land. A decision relating to the selling of mining stocks by promoters was handed down in the case of the *Old Dominion Copper Mining and Smelting Company vs. Lewisohn*. In this case, the promoters having designedly issued a few shares of stocks themselves adopted the sale and immediately offered the remainder to the public. The court held that the corporation had no remedy, since all the stockholders for the time being knew the facts and their unanimous act cannot be a fraud upon the corporation.

The Supreme Court on Nov. 16 disposed of the dispute between the States of Washington and Oregon over the boundary between them in the Columbia River by deciding in favor of Oregon. Sand Island, in the middle of the river, was claimed by both States, Washington's claim being based on the fact that the main channel of the river, which was the boundary, had changed from one side of the island to the other. The court, however, held that the original boundary had not been changed by the mere deepening of one of the two channels. This decision will have a distinct bearing on the dispute between the two States over fishery rights on the Columbia River.

Charges were made early in the year against Judge Lebbeus R. Wilfley of the United States Court at Shanghai, China, on the ground that he had exceeded his authority and acted in a tyrannous manner. After investigation by Secretary Root, Judge Wilfley was exonerated of these charges. His report was endorsed by President Roosevelt in a letter in which he concurred in the findings and enthusiastically praised the work which Judge Wilfley had done in his efforts to stamp out vice and crime in Shanghai. In November, suit for libel was brought by Judge Wilfley against the editor of the *China Gazette*, and the trial resulted in the conviction of the editor. Judge Wilfley resigned his office in the latter part of the year.

CENSUS OF 1910. The regular decennial census of the United States will be taken in 1910. A bill providing for this, the thirteenth census, was introduced in the first session of the Sixtieth Congress, but no action was taken in that session and it went over into the second session. This bill, like the law of 1899, limits the enumeration to be taken to four subjects, population, agriculture, manufactures, and mines and quarries, leaving the other decennial inquiries to the interval between the censuses. In this bill, one of the subjects dealt with in 1899, that of deaths in the general population, has been dropped for the reason that the tables thus prepared in the twelfth census were so imperfect as to have very little statistical or medical value. The bill proposes one other subject for inquiry, that of mines and mining. This is done because past experience in the taking of the census shows that the line between manufacturing on the one hand, and mining and quarrying on the other, is one almost impossible for the census office to draw. The proposed bill requires the results of the census to be published by the summer of 1912, and thus prohibits the office from extending its publication into the seventh and

eight year after the census day as had been done at certain previous censuses. One of the most important new features in the draft of this bill is the provision for the almost automatic transfer of the census office from the status closely approaching that of an ordinary bureau, which it maintains during the seven years intervening between the decennial census, to the unusual condition requisite during the three years when the decennial census is being taken. The period from July 1, 1909, to July 1, 1912, is called the decennial census period. During this period the Director of the Census may permit the transfer of persons from the temporary roll of employees, holding the office only during the decennial period, to the permanent force and vice versa. The law proposes to change the census day from June 1 to April 15.

Probably the greatest public interest in the census lay in the question whether or not the additional employees of the bureau, numbering about 4,000, should or should not be chosen under the civil service rules. The Director of the Census was heartily in favor of selecting these employees from the civil service, as was President Roosevelt, who, in a brief special message, to Congress in January, urged that provision be made for bringing the appointment of the clerical force needed for the thirteenth census under regulation of the civil service. The President stated that the non-competitive examination held to select census officers for 1890 and 1900 were used only "as a cloak to hide the nakedness of the spoils system." He says, "They may prevent the most incompetent from being appointed, but they do not secure the appointment of the most competent and they afford no check upon political appointments." He asserted also that the great majority of clerks for the last two censuses were far below the average ability and only about half could pass the competitive examinations under civil service rules. In spite of this, however, a provision was inserted in the proposed bill that the extra clerical force for the census office shall be appointed outside the classified civil service. If this provision is retained the appointment of these special employees will fall to the Representatives and Senators.

The Director of the Census, S. N. D. North, estimated in his annual report, issued in Nov., that the cost of the thirteenth census would be \$12,930,000, which is only \$410,000 more than the cost of the census of 1900. The increase heretofore in the cost of taking the census has been about 50 per cent. from decade to decade. The saving, says Mr. North, will be effected by reason of the existence of a permanent census bureau and the installation of the bureau's own tabulating machines.

CABINET. The only changes in President Roosevelt's Cabinet in 1908 were in the departments of War and Navy. On Jan. 30, William H. Taft resigned as Secretary of War, to become the Republican candidate for President. Luke E. Wright, who was at the time the American Ambassador to Japan, was appointed by President Roosevelt to fill his place. Mr. Wright was a member of the Philippine Commission in 1900-1904 and was appointed civil governor in the latter year, and later Governor-General, serving until 1906, when he was appointed as Ambassador to Japan. In politics he is a Democrat. On Nov. 13, Victor H. Metcalf resigned the portfolio of the Secretary of

the Navy, which he had held since Dec. 17, 1906. He was succeeded by Truman H. Newberry, of Michigan, who was Assistant Secretary of the Navy. The Cabinet at the close of the year was composed as follows: Secretary of State, Elihu Root, of New York; Secretary of War, Luke E. Wright, of Tennessee; Secretary of the Navy, Truman H. Newberry, of Michigan; Postmaster-General, George von L. Meyer, of Massachusetts; Secretary of the Interior, James R. Garfield, of Ohio; Secretary of Agriculture, James H. Wilson, of Iowa; Secretary of Commerce and Labor, Oscar S. Straus, of New York; Attorney General, Charles J. Bonaparte, of Maryland. Mr. Wilson is the member of the Cabinet oldest in service as he held the portfolio of Agriculture under President McKinley.

DIPLOMATIC SERVICE. There were only two changes of the first order of importance in the diplomatic service in 1908. These changes both related to Germany. In the latter part of 1907 it had been announced that Charlemagne Tower, Ambassador to Germany, would resign in the early part of 1908 and would be succeeded by David J. Hill. A few weeks previous to the time when the confirmation of Dr. Hill would come before the Senate, newspaper cablegrams were received from Berlin, announcing in somewhat vague terms that Dr. Hill would not be acceptable to the German government, upon the ground, it was alleged, that he was not a man of sufficient importance to represent the United States in Berlin. This statement aroused great resentment, and the German Ambassador formally conveyed to the American government the assurance of the German Emperor that there had never been any change in his attitude toward Dr. Hill. Dr. Hill's appointment was promptly confirmed by the Senate and he became Ambassador on June 1, when the long-announced resignation of Mr. Tower took effect. Baron Herman Speck von Sternburg, who had been Ambassador from Germany for five years, died at Heidelberg on Aug. 24. Baron von Sternburg rendered distinguished service during his ambassadorship, and by his ability and by his personal characteristics aided greatly in preserving and increasing cordial feeling between the two countries. On Nov. 7 it was announced that Count Johann Heinrich von Bernstorff, the Consul-General of Germany at Cairo, Egypt, would be appointed to succeed Baron von Sternburg as German Ambassador at Washington. Don Enrique C. Creel, Mexican Minister to the United States, resigned the office and on Nov. 14 it was announced that Francisco L. de la Barra, Mexican Minister to the Netherlands, had been appointed to succeed him as Mexican Minister at Washington. On account of the troubles in Turkey (see **TURKEY**), the Turkish Minister, Mehmed Ali Bey, was recalled on Aug. 11. Mundji Bey, the Turkish Consul-General at New York, temporarily assumed the duties of Acting Minister at Washington. On Aug. 15 it was announced that Hussein Kiazim Bey, the representative of Turkey at Bucharest, was appointed Turkish Minister to the United States. Among minor changes was the resignation of Joseph W. J. Lee as Minister to Guatemala, who was succeeded by William Heimke. Two new diplomatic posts in Central America were created by the diplomatic appropriation bill passed at the first session of the Sixtieth Congress. These were Honduras and Nicaragua. John C. Coolidge, of Massachusetts, formerly Secretary of the Em-



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DR. DAVID JAYNE HILL
American Ambassador to Germany



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COUNT JOHANN HEINRICH VON BERNSTORFF
German Ambassador to the United States

bassy to Mexico, was appointed Minister to Nicaragua, and William B. Sorsby, of Mississippi, formerly Minister to Bolivia, was appointed Minister to Honduras. To fill the vacancy in the post of Bolivia, James F. Stutesman, of Indiana, was appointed Minister. With these promotions and appointments the United States

has a Minister at each of the five Central American republics. Heretofore one Minister has been sent to Costa Rica and Nicaragua, and one to Honduras and Salvador. Below will be found a list of representatives of the United States to foreign countries and a list of representatives accorded to the United States in 1908:

ACCREDITED BY UNITED STATES

ACCREDITED TO UNITED STATES

AMBASSADORS

Country	Appointed from	Date of Com.
Austria-Hungary	Charles S. Francis.	N. Y., 1906.....
Brazil	Irving B. Dudley.	Cal., 1906.....
France	Henry White.	R. I., 1906.....
Germany	David J. Hill.	N. Y., 1906.....
Great Britain	Whitelaw Reid.	N. Y., 1906.....
Italy	Lloyd C. Griscom.	Penn., 1906.....
Japan	Thomas J. O'Brien.	Mich., 1907.....
Mexico	David E. Thompson.	Neb., 1906.....
Russia	John W. Riddle.	Minn., 1906.....
Turkey	John G. A. Leishman.	Penn., 1906.....
		Baron Hengelmüller von Hen- gervär .....1902
		Joaquim Nabuco .....1905
		J. J. Jusserand .....1903
		Count Johann Heinrich von Bernstorff .....1908
		James Bryce .....1907
		Edmundo Mayor des Planches .....1906
		Baron Kogoro Takahira .....1908
		Don Enrique C. Creel .....1907
		Baron Rosen .....1905
		Munji Bey .....1908

MINISTERS PLENIPOTENTIARY

Argentine Republic	Spencer F. Eddy.	Ill., 1908.....
Belgium	Henry L. Wilson.	Wash., 1906.....
Bolivia	James F. Stutesman.	Ind., 1908.....
Chile	John Hicks.	Wis., 1906.....
China	W. W. Rockhill.	D. C., 1906.....
Colombia	Thomas C. Dawson.	Iowa, 1907.....
Costa Rica	William L. Merry.	Cal., 1897.....
Cuba	Edwin V. Morgan.	N. Y., 1906.....
Denmark	Maurice F. Egan.	D. C., 1907.....
Ecuador	William C. Fox.	N. J., 1907.....
*Greece	Richmond Pearson.	N. C., 1907.....
Guatemala	William Helmke.	Kans., 1908.....
Haiti	Henry W. Furniss.	Ind., 1905.....
Honduras	William B. Sorsby.	Miss., 1908.....
Morocco	S. R. Gummere.	N. J., 1906.....
†Netherlands	Arthur M. Beaupré.	Ill., 1908.....
Nicaragua	John G. Coolidge.	Mass., 1908.....
Norway	Herbert H. D. Peirce.	Mass., 1906.....
Panama	Herbert L. Squalers.	N. Y., 1906.....
Persia	John B. Jackson.	N. C., 1902.....
Peru	Leslie Combs.	Ky., 1906.....
Portugal	Charles Page Bryan.	Ill., 1903.....
†Rumania	Horace G. Knowles.	Del., 1907.....
Salvador	H. Percival Dodge.	Mass., 1907.....
Siam	Hamilton King.	Mich., 1903.....
Spain	William M. Collier.	N. Y., 1905.....
Sweden	Charles H. Graves.	Minn., 1905.....
Switzerland	Brutus J. Clay.	Ky., 1906.....
Uruguay	Edward C. O'Brien.	N. Y., 1905.....
Venezuela		R. Garbiras Guzman.....1906
		Don Epifanio Portela.....1905
		Baron Moncheur .....1901
		Don Ignacio Calderon .....1904
		Don Anibal Cruz .....1908
		Dr. Wu Ting-Fang .....1908
		Don Enrique Cortés .....1906
		Joaquín Bernardo Calvo .....1899
		Gonzalo de Quesada .....1902
		Count Moltke .....1908
		Luis Felipe Carbo .....1906
		L. A. Coro-Millas .....1906
		Luis Toledo Herrarte .....1907
		J. N. Léger .....1896
		Dr. Luis Lazo .....1908
		Jonkherr J. Loudon .....1908
		Luis F. Corea .....1899
		O. Gude .....1903
		José Augustin Arango .....1907
		General Morteza Kahn .....1905
		Felipe Pardo .....1905
		Viscount de Aite .....1902
		Federico Mejia .....1907
		Phya Akharaj Varadhara .....1901
		Ramon Piña .....1907
		Herman de Lagercrantz .....1907
		Leo Vogel .....1906
		Luis Mellan Lafnir .....1907
		R. Garbiras Guzman .....1906

MINISTERS RESIDENT AND CONSULS

Dominican Republic	Fenton R. McCreery.	Mich., 1907.....
Liberia	Ernest Lyon.	Md., 1903.....

DIPLOMATIC AGENTS

Bulgaria	Horace G. Knowles.	Del., 1907.....
Egypt	Lewis M. Iddings.	N. Y., 1906.....

*Accredited also to Montenegro.

†Accredited also to Luxemburg.

†Accredited also to Servia.

||Accredited also to Paraguay.

‡See text above.

CONSULAR SERVICE. Under a law passed by Congress in April, 1906, reorganizing the Consular Service and making the civil service and the principles embodied in the Civil Service Act of 1893, applicable to it, several important changes were made in 1908. Nearly sixty consular officers were promoted or transferred under its rules. Perhaps the most important of these promotions was that of Robert P. Skinner, of Ohio, from the Consul-Generalship at Marseilles, France, to that of Hamburg, Germany. Horace Lee Washington was transferred from the Consulship at large to the Consulship at Marseilles, and Hector de Castro was transferred from the Consul-Generalship at Rome to that of Zurich. The Consuls-General in the most important cities of the world on Sept. 8, 1908, were as follows: **SOUTH AMERICA:** Buenos Aires, Alban G. Snyder; Rio de Janeiro, George E. Anderson; Val-

paraiso, Alfred A. Winslow; Bogota, Jay White; Callao, Samuel M. Taylor; City of Mexico, Benjamin H. Ridgley; **EUROPE:** Vienna, William G. Rublee; Brussels, Ethelbert Watts; Copenhagen, Frank R. Mowrer; Marseilles, Horace L. Washington; Paris, Frank H. Mason; Berlin, William H. Thackara; Bremen, William T. Fee; Hamburg, Robert P. Skinner; Birmingham, Albert Halstead; Edinburgh, Rufus Fleming; London, Robert J. Wynne; Manchester, Church Howe; Liverpool, John L. Griffiths; Dublin, Albert K. Moe; Glasgow, John M. McCunn; Florence, Jerome A. Quay; Genoa, James K. Smith; Rome, Chapman Coleman; Rotterdam, Soren Listoe; Amsterdam, Henry H. Morgan; Christiania, Henry Bordewich; Lisbon, Louis H. Aymé; Moscow, Hunter Sharp; St. Petersburg, James W. Ragsdale; Madrid, Richard M. Bartleman; Stockholm, Edward L. Adams; Berne,

George Heimrod; Constantinople, Edward H. Ozmun; ASIA: Shanghai, Charles Denby; Yokohama, Henry B. Miller; AFRICA: Cairo, Lewis M. Iddings; Alexandria, David R. Burch; AUSTRALIA: Auckland, William A. Prickett; Melbourne, John F. Jewell; Sydney, John P. Bray; CANADA: Montreal, William H. Bradley; Quebec, William W. Henry.

CONGRESS. The 60th Congress convened its first session on Monday, Dec. 2, 1907, and came to a close on May 30, 1908. The Congress was the largest in the point of numbers that has assembled in the history of the government. Oklahoma's inclusion in the number of States added two Senators and five Representatives. There were therefore 92 Senators as against 90 for the past eleven years, and 392 Representatives as against 386 for the past four years. As the Senators from Oklahoma were Democrats, the two-thirds Republican majority heretofore existing in the Senate was destroyed. In the Senate at the beginning of the session there were 60 Republicans and 31 Democrats. In Jan. an additional Republican Senator was added by the election of George P. Wetmore from Rhode Island. In the House there were 322 Republicans and 169 Democrats. Joseph G. Cannon, of Illinois, was reelected Speaker without opposition, and John Sharp Williams, of Mississippi, was again chosen leader of the minority. The President's message at the beginning of the session included a discussion of all the important matters to be considered by Congress and contained many recommendations and suggestions for new legislation. He discussed at great length the financial condition prevailing as a result of the panic of October and November, and he again urged Congress to pass legislation relating to the regulation of dishonest corporations by Federal law. He recommended also amendments to the Sherman Anti-trust Law. Tariff revision was not urged, the President and the Republican leaders in Congress having previously reached an understanding that it should wait until after the presidential election of 1908. The President expressed the opinion that the income tax and the inheritance tax should be made a part of the Federal system of taxation. He recommended the limitation of the use of injunctions and urged the adoption of adequate liability laws, providing compensation for employees of the government who are injured in the performance of their duties. He discussed at great length the relations between labor and capital and recommended a compulsory investigation of industrial disputes. Among other matters in which he urged action by Congress were internal waterways, the preservation of public lands, a system of postal savings banks, establishment of a National Gallery of Art, creation of a Bureau of Mines, citizenship for Porto Ricans, and some form of local government for Alaska.

The fact that this session of Congress preceded a presidential election gave basis for the general opinion that there would not be a large amount of legislation accomplished. This opinion was reinforced to some extent by the speech of acceptance delivered by Speaker Cannon, who urged the necessity of conservatism in legislation. In spite of this conviction, however, the number of the bills introduced in this session broke all records in the history of the government. They numbered nearly 30,000. Of this number

three-fourths were introduced in the House of Representatives. The Sixtieth Congress, as a result of its refusal to pass much of the legislation urged by President Roosevelt, especially that bearing on labor, won the name of a "Do-nothing Congress." In order to emphasize the importance of passing these and kindred measures, the President, on Jan. 31, sent in a special message in which he urged the passage of the Employers' Liability Act and the limitation of the power of courts to enforce injunctions. The greater part, however, of this remarkable message was devoted to an attack upon several of the larger corporations and to a defense of those measures which had come to be known as the "President's policies." The message was couched in the most vigorous language and its reception in Congress and throughout the country was little less than sensational.

Another message dealing with the same subjects, but much milder in tone, was sent to Congress March 25. In this President Roosevelt asserted that child labor should be prohibited throughout the Union and urged the adoption of a model child labor bill for the District of Columbia. He renewed his recommendation for the immediate enactment of the Employers' Liability Law, drawn to conform to the decisions of the Supreme Court. He recommended also amendments to the Interstate Commerce Law, and especially to the Anti-trust Law. The Interstate Commerce Law he said should be amended so as to give railroads the right to make traffic agreements; the subject of these agreements being approved by the Interstate Commerce Commission and published in all their details. He advised that provision should be made for a permanent Waterways Commission and urged financial legislation. The measures advocated by the President were those which caused the greatest amount of discussion during the session of Congress. Among the measures advocated by him which were passed was the new Employers' Liability Law, so drawn as to meet the objections of unconstitutionality raised by the Supreme Court to the act of the Fifty-ninth Congress. This relates to common carriers doing interstate business and deals with the question of contributory negligence on the part of the employee injured or losing his life. A bill urged by the administration, establishing the right of employees of the government employed in mechanical trades in the District of Columbia, was also passed.

The question of changing the law in reference to injunctions was the cause of one of the greatest contests of the session. The labor unions asked that a law be passed to take them out of the category of corporations that may restrain trade for profit, and also that the "conspiracy" feature in common law be stricken out of the statutes, so far as they relate to unions engaged in strike. A bill prepared by the National Civic Federation, which left the labor unions under the common law and at the same time provided an opportunity for the corporations to obtain immunity from certain features of the Sherman Anti-trust Law, was introduced in both houses, and was supported by President Roosevelt. It was, however, defeated in the committee. The Child Labor Law for the District of Columbia, urged by President Roosevelt, was passed. Congress refused to amend the Sherman Anti-trust Law as desired by the President, and among other recommenda-

tions made by him which failed of enactment were those for Federal inheritance and income tax.

The most important measure passed at this session of Congress was undoubtedly the Emergency Currency Bill, a compromise between the bill introduced in the Senate by Senator Aldrich and the Vreeland Bill, introduced by Representative Vreeland in the House. This measure was accepted by the House on May 27 and was at once signed by the President. Its passage was marked by a notable filibuster, carried on by Senator La Follette, of Wisconsin, with the aid of Senator Stone, of Missouri, and Senator Gore, of Oklahoma. Senator La Follette made a speech lasting eighteen and a half hours. A discussion of this bill will be found in the article CURRENCY.

Among other important measures passed were those modifying the customs law; converting the militia into an integral part of the National military establishment (see MILITIA); authorizing many new public buildings; providing for the construction of two new battleships at a cost of \$6,000,000 each; and for the thorough reorganization of the Consular service; a commission was appointed to represent the United States at the Tokio Exposition in 1912; \$29,227,000 was appropriated for the Panama Canal; and \$10,800,000 of the Chinese indemnity, resulting from the Boxer uprising, was remitted. A law was passed excluding intoxicants and anarchistic and seditious publications from the mails, and a number of important measures were passed affecting public lands. Among important matters left unfinished, either in the form of unpassed bills or as subjects for discussion in committee, were those relating to relations with Venezuela; resolutions in the Brownsville affair; changes in the administrative customs law in accordance with the agreement with Germany; postal savings bank bill; anti-injunction legislation; campaign publicity legislation; and amendments to the Interstate Commerce Law and Naturalization Law.

The Brownsville affair received, as in the Fifty-ninth Congress, a degree of attention out of proportion to its importance. The Senate Committee on Military Affairs, which made an examination into the affair, failed to agree in its report. Two bills were framed for the action of Congress, one the Warner Bill, permitting the President as commander-in-chief to reinstate any of the soldiers who could prove themselves innocent, at the President's discretion, and the other, introduced by Senator Foraker, provided for the restoration by affidavit and made the Post Commander the judge. On a motion made by Senator Foraker himself (see paragraph *Brownsville Incident*), a consideration of this matter was postponed until December.

There was marked opposition in both the House and the Senate to the President's strongly expressed desire for four battleships. A compromise was made, as noted above, by granting two battleships, with the recommendation to future Congresses to provide two each year thereafter. The inquiry by the Senate Naval Committee into the alleged structural defects in the battleships brought about as a result of articles by Henry Reuter Dahl and others, led to no definite results, as the Committee made no report on its findings. A bill was passed increasing the pay of the army and navy, as was also the Widows' Pension Bill, and a measure

to reorganize the Medical Department of the Army.

A bill was passed also increasing the efficiency of the Life Saving Service. The bill providing for the publicity of campaign funds, which was urged by the Democrats in the House, was defeated by finesse on the part of the Republicans, who amended the bill in such a way as to provide for the investigation of the suppression of the negro vote in Southern States. The Democrats voted solidly against it and the effect was to kill the bill. The bill providing a subsidy for mail-carrying steamships on the Pacific was passed in the Senate, but in the House it was defeated, mostly by the votes of Republicans from the Middle West. In spite of the request of President Roosevelt, the Senate refused to appropriate money to make permanent the Inland Waterways Commission, although the House appropriated the \$20,000 asked for. The resolutions authorizing the Ways and Means Committee of the House and the Finance Committee of the Senate to prepare data on which to base a revision of the tariff are discussed more fully in the article TARIFF. As a result of charges made by Representative Lilley, of Connecticut, a special committee of five members of the House was appointed to investigate the conduct of the Electric Boat Company and its predecessor, the Holland Boat Company, respecting the methods employed by these companies in connection with past and present legislation before Congress. Mr. Lilley charged that contracts had been obtained for submarines by these companies by illegal and corrupt means. The evidence taken by this committee did not substantiate these charges and they were dismissed. During the session the Senate ratified 11 conventions proposed by the Hague Peace Conference. (See TREATIES.)

The aggregate of all appropriations made by Congress in this session was \$1,008,804,894, or more than \$88,000,000 in excess of the budget of the previous year. Of this increase \$23,000,000 is chargeable to the navy and \$16,000,000 to the army. Other appropriations were as follows: Sundry civil, \$120,000,000; legislative, executive, and judicial, \$33,000,000; army, \$55,382,000; post office, \$221,765,000; pensions, \$163,000,000; fortifications, \$11,500,000; agriculture, \$11,642,000; District of Columbia, \$11,500,000; diplomatic and consular, \$4,000,000; naval, \$122,662,000; Indian, \$9,000,000; urgent deficiency, \$26,000,000; public buildings, \$25,000,000; general deficiency, \$17,000,000; Military Academy and emigration station at Philadelphia, relief of cyclone sufferers in the South, etc., \$150,000; permanent annual appropriations, \$154,000,000. The largest appropriations in the "Omnibus" Buildings bill were those for the public buildings at San Diego, Cal., \$75,000; Duluth, Minn., \$95,000; Salt Lake City, Utah, \$200,000; Wilmington, Del., \$125,000; Boise, Idaho, \$125,000; Easton, Penn., \$100,000; Plainfield, N. J., \$100,000; Westerly, R. I., \$100,000.

SECOND SESSION. The second session of the Sixtieth Congress began on Dec. 3d. During the recess the Senate lost two of its members by death, William B. Allison, of Iowa, who died Aug. 4th, and Redfield Proctor, of Vermont, who died on March 4th. Albert B. Cummins was elected to fill the place left vacant by Senator Allison, and John Wolcott Stewart was appointed to fill the vacancy caused by Senator Proctor's death. Carroll S. Page was subse-

quently elected to the office by the Vermont Legislature. The death of Senator Allison left vacant the chairmanship of the Committee on Appropriations, which he had filled for many years. Senator Hale, of Maine, was assigned to this chairmanship. President Roosevelt submitted his seventh and last annual message to Congress on Dec. 8. A large part of the message was taken up with a discussion of the relations of labor and capital, particularly with reference to the action of the Federal courts and the liability of employers. He recommended that the Sherman Anti-Trust law be modified to permit large combinations not formed to effect monopolies or against public interests, and that railroads be taken out of the scope of the Sherman Act and placed under the jurisdiction of the Interstate Commerce Commission. He reviewed the financial operations of the government from July 1st, 1901, to Sept. 30th, 1908, and declared that the financial management during that period had shown the most satisfactory results. He recommended that telegraph and telephone companies engaged in interstate commerce should be under the jurisdiction of the Interstate Commerce Commission. Much of the message was taken up with matters relating to Federal courts. The recommendation was made that the salaries of all Federal Judges from the Supreme Court down should be doubled. He expressed the desire that some method should be found of doing away with the law's delay. A considerable sensation was caused by the section of the President's message in which he criticised Congress for passing an amendment at its last session to the clause of the appropriation bill which made provision for the Secret Service. The amendment provided that there should be no detail from the Secret Service and no transfer therefrom. The President in this connection said: "It is not too much to say that this amendment has been of benefit only and could be of benefit only to the criminal classes. If deliberately introduced for the purpose of diminishing the effectiveness of war against crime it could not have been better devised to this end. It forbade the practices that have been followed to a greater or less extent by the executive heads of the various departments for twenty years. . . . These practices have enabled us to discover some of the most outrageous frauds in connection with the acquisition of government lands and government timber by great corporations and by individuals. These practices have enabled us to get some of the facts indispensable in order to secure the conviction of the wealthiest and most formidable criminals with whom the government has to deal. . . . The chief argument in favor of the provision was that the Congressmen do not themselves wish to be investigated by Secret Service men. Very little of such investigation has been done in the past, and it is true that the work of the Secret Service agents was particularly responsible for the indictment and conviction of a Senator and of a Congressman for land frauds in Oregon. I do not believe that it is in the public interest to protect criminals in any branch of the public service, and exactly as we have again and again during the last seven years prosecuted and convicted such criminals who were in the executive branch of the government, so in my belief we should be given ample means to prosecute them if found in the legislative branch. But if this is not considered desirable a special exception could be made in the law prohibiting the use of the Secret Service

force in investigating the members of Congress. It would be far better to do this than to do what actually was done and strive to prevent or hamper effectual action against criminals by a legislative act of the government."

The Senators and Representatives saw in this statement a virtual declaration that Congressmen had restricted the operations of the government Secret Service because they did not themselves wish to be investigated, and great indignation was felt and expressed in both branches of Congress. In the House of Representatives conferences were at once begun by the leaders of both parties to determine what action should be taken. The sentiment was found to be unanimous that the House should in some manner show its resentment to the strictures passed upon its members. In the Senate, too, the President's action caused equal indignation and resentment. On December 16 a general discussion of the action to be taken by the Senate took place. The leaders for both parties placed the matter of redress in the hands of Senator Aldrich of Rhode Island and a resolution, which reads in part as follows, was passed: "Resolved, That that portion of the annual message of the President relating to the Secret Service is hereby referred to the Committee on Appropriations, who are instructed to inquire whether the legislation referred to in the message has impaired the efficiency or sufficiency of the force employed in the Secret Service, and such committee are further directed to ascertain what persons other than those included in the Secret Service were paid from the public treasury during the fiscal year ended June 30, 1908, for services in connection with the enforcement of the laws." The Committee on Appropriations was authorized to hold investigations and to report to the Senate the result of their inquiry and to make such recommendations as they saw fit with reference thereto.

On December 17 a resolution similar in tenor but more specific in statement was passed almost unanimously in the House. After quoting the remarks of the President the resolution read in part as follows: "Whereas, The plain meaning of the above words is that the majority of the Congressmen were in fear of being investigated by Secret Service men and that Congress, as a whole, was actuated by that motive in enacting the provision in question, and whereas that committee appointed to consider this statement of the President and to report to the House cannot find in the hearings before the committee or in the records of the House or Senate any justification of this impeachment of the honor and integrity of the Congress, and whereas that committee would prefer, in order to make an intelligent and comprehensive report, just to the President as well as to Congress, to have all the information which the President may have to communicate, now, therefore, Be it resolved, That the President be requested to transmit to the House any evidence upon which he based his statements . . . and also transmit to the House any evidence connecting any member of the House of Representatives of the Sixtieth Congress of corrupt legislation in his official capacity and to inform the House whether he has instituted proceedings for the punishment of any such individual by the courts or has reported any such alleged delinquencies to the House of Representatives."

Up to the time of the adjournment of Congress for the holidays on December 19, President

Roosevelt had not signified what action, if any, he would take on these resolutions.

Several special messages were sent by the President to Congress. These included a message transmitting the draft of a bill to replace the present law under which the United States could proceed in time of emergency to raise a voluntary army. On December 14 a special message was sent in relation to the Brownsville affair. (See paragraph *Brownsville Incident*.)

Accusations of corruption in connection with the sale of its rights to the Panama Canal by France to the United States, made in certain newspapers, prompted the President to send to Congress on December 15 a special message, emphatically denying such charges and characterizing as libelous and scurrilous the charges and insinuations made. The President placed the chief responsibility for the circulation of these charges upon Joseph Pulitzer, the owner of the *New York World*, and incidentally accused Delavan Smith, editor of the *Indianapolis News*, of being responsible for the circulation of these rumors from the matter obtained from the *New York World*. The President insisted that there had been nothing in the transaction between the United States and France in connection with the Panama Canal which required an investigation. He expressed the opinion that suit for libel of the government should be brought against Mr. Pulitzer, and added that the Attorney General was considering the form that the prosecution should take. The matter published in newspapers relating to this transaction involved Charles P. Taft, half brother of William H. Taft, and Doug-

las Robinson, brother-in-law of President Roosevelt. President Roosevelt was especially emphatic in his declaration that these gentlemen had nothing whatever to do with the payment of money for the Panama Canal. He asserted that while these statements were in part libelous upon individuals, they were in fact wholly, and in form partly, a libel upon the United States government and that the great injury done was in blackening the good name of the American people. He said it should not be left for the private citizen to sue Mr. Pulitzer for libel; he should be prosecuted for libel by the governmental authorities; adding, "In point of encouragement of iniquity, in point of infamy or wrongdoing, there is nothing to choose between a public servant who betrays his trust, a public servant who is guilty of blackmail or theft or financial dishonesty of any kind, and a man guilty as Mr. Joseph Pulitzer has been guilty in this instance." Up to the date of the holiday adjournment no action had been taken by Congress on the recommendations in this message. No action of importance was taken on any message up to the date of the adjournment. The Brownsville incident was discussed by Senator Foraker and Senator Lodge in the Senate and a bill establishing postal savings banks also came up for discussion. Congress adjourned on December 19 until January 4, 1909.

CONGRESSIONAL REPRESENTATION. In the following table is given a list of the Senators serving in the 60th Congress, with an indication of those whose terms expire in 1909 and the dates of election or appointment of the remaining:

John H. Bankhead, D. *	ALABAMA.	Joseph F. Johnston, D. *
James P. Clarke, D. †	ARKANSAS.	Jeff Davis, D. *
George C. Perkins, R. †	CALIFORNIA.	Frank P. Flint, R. †
Henry M. Teller, D. †	COLORADO.	Simon Guggenheim, R. *
Morgan G. Bulkeley, R. †	CONNECTICUT.	Frank B. Brandegee, R. †
Henry A. du Pont, R. †	DELAWARE.	Harry A. Richardson, R. *
James P. Taliaferro, D. †	FLORIDA.	William H. Milton, D. †
Augustus O. Bacon, D. *	GEORGIA.	Alexander S. Clay, D. †
Weldon B. Heyburn, R. †	IDAHO.	William E. Borah, R. *
Shelby M. Cullom, R. *	ILLINOIS.	Albert J. Hopkins, R. †
Albert J. Beveridge, †	INDIANA.	James A. Hemenway, R. †
Jonathan P. Dolliver, R. *	IOWA.	Albert B. Cummins, R. †
Chester I. Long, R. †	KANSAS.	Charles Curtis, R. *
James B. McCreary, D. †	KENTUCKY.	Thomas H. Paynter, D. *
Samuel D. McEnery, D. †	LOUISIANA.	Murphy J. Foster, D. *

* Elected 1907. † Term expires 1909

‡ Elected 1905.

UNITED STATES

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UNITED STATES

Eugene Hale, R. ‡
 Isaac Rayner, D. ‡
 Henry Cabot Lodge, R. ‡
 Julius C. Burrows, R. ‡
 Knute Nelson, R. *
 Hernando D. Money, D. ‡
 William J. Stone, D. †
 Thomas H. Carter, R. ‡
 Elmer J. Burkett, R. ‡
 Francis G. Newlands, D. †
 Jacob H. Gallinger, R. †
 John Kean, R. ‡
 Thomas C. Platt, R. †
 F. M. Simmons, D. *
 Henry C. Hansbrough, R. †
 Joseph B. Foraker, R. †
 Thomas P. Gore, D. †
 Charles W. Fulton, R. †
 Boies Penrose, R. †
 Nelson W. Aldrich, R. ‡
 Benjamin R. Tillman, D. *
 Robert J. Gamble, R. *
 James B. Frazier, D. ‡
 Charles A. Culberson, D. ‡
 Reed Smoot, R. †
 William P. Dillingham, R. †
 John W. Daniel, D. ‡
 Levi Ankeny, R. †
 Stephen B. Elkins, R. *
 Robert M. La Follette, R. ‡
 Francis E. Warren, R. *
 * Elected 1907. †Term expires 1909.

MAINE.
 MARYLAND.
 MASSACHUSETTS.
 MICHIGAN.
 MINNESOTA.
 MISSISSIPPI.
 MISSOURI.
 MONTANA.
 NEBRASKA.
 NEVADA.
 NEW HAMPSHIRE.
 NEW JERSEY.
 NEW YORK.
 NORTH CAROLINA.
 NORTH DAKOTA.
 OHIO.
 OKLAHOMA.
 OREGON.
 PENNSYLVANIA.
 RHODE ISLAND.
 SOUTH CAROLINA.
 SOUTH DAKOTA.
 TENNESSEE.
 TEXAS.
 UTAH.
 VERMONT.
 VIRGINIA.
 WASHINGTON.
 WEST VIRGINIA.
 WISCONSIN.
 WYOMING.

William P. Frye, R. *
 John Walter Smith, D. †
 W. Murray Crane, R. *
 William Alden Smith, R. *
 Moses E. Clapp, R. ‡
 Anselm J. McLaurin, D. *
 William Warner, R. ‡
 Joseph M. Dixon, R. *
 Norris Brown, R. *
 George S. Nixon, R. ‡
 Henry E. Burnham, R. *
 Frank O. Briggs, R. *
 Chauncey M. Depew, R. ‡
 Lee S. Overman, D. †
 Porter J. McCumber, R. ‡
 Charles Dick, R. ‡
 Robert L. Owen, D. *
 Jonathan Bourne, Jr., R. *
 Philander C. Knox, R. ‡
 George P. Wetmore, R. †
 Frank B. Gary, D. †
 Alfred B. Kittredge, R. †
 Robert L. Taylor, D. *
 Joseph W. Bailey, D. *
 George Sutherland, R. ‡
 Carroll S. Page, R. †
 Thomas S. Martin, D. *
 Samuel H. Piles, R. ‡
 Nathan B. Scott, R. ‡
 Isaac Stephenson, R. †
 Clarence D. Clark, R. ‡
 ‡ Elected 1905. †Elected 1908.

The following table shows the personnel of the House of Representatives as it will stand in the Sixty-first Congress, with an indication of those Representatives who served in a previous House, those who served in the Sixtieth Congress, and those who were elected to fill vacancies in the Sixtieth Congress. The composition of the House is the result of the election of Nov. 3.

Republicans in Roman (219); Democrats, in *italic* (172). Whole number 391. Those marked * served in the Sixtieth Congress. Those marked † served in a previous House. Those marked with a ‡ were elected also to fill vacancies in the Sixtieth Congress.

ALABAMA.

* George W. Taylor.
S. H. Dent, Jr.
Henry D. Clayton.

* W. B. Craig.
J. Thomas Heflin.
Richmond P. Hobson.

* John L. Burnett.
William Richardson.
Oscar W. Underwood.

ARKANSAS.

* Robert Bruce Macon.
W. A. Oldfield.

* John C. Floyd.
Ben Cravens.
Robert E. Wallace.

* Charles C. Reid.
Joseph T. Robinson.

CALIFORNIA.

* W. F. Englebright.
Duncan E. McKinlay.

* Joseph R. Knowland.
Julius Kahn.

* Everis A. Hayes.
James C. Needham.

* James McLachlan.

* Sylvester C. Smith.

COLORADO.

At Large.

Edward T. Taylor.

Atterson W. Rucker.

John A. Martin.

CONNECTICUT.

At Large.

John Q. Tilton.

* Edwin W. Higgins.

* E. Stevens Henry.

* Ebenezer J. Hill.

* Nehemiah D. Sperry.

DELAWARE.

At Large.

William H. Heald.

FLORIDA.

* Stephen M. Sparkman.

* Frank Clark.

Dannette H. Mays.

GEORGIA.

* Charles G. Edwards.
James M. Griggs.
Dudley M. Hughes.

* William C. Adamson.
Leonidas F. Livingston.
Charles L. Bartlett.

* Gordon Lee.
William M. Howard.
Thomas M. Bell.

* Thomas W. Hardwick.

* William G. Brantley.

IDAHO.

At Large.

Thomas R. Hamer.

ILLINOIS.

* Martin B. Madden.
James R. Mann.
William W. Wilson.
James T. McDermott.
Adolph J. Sabath.
William Lorimer.
Fred Lundin.
Thomas Gallagher.

* Henry S. Boutell.
George Edmund Foss.
Howard M. Snapp.
Charles E. Fuller.
Frank O. Lowden.
James McKinney.
George W. Prince.
Joseph V. Graff.
Napoleon B. Thistlewood.

* John A. Sterling.
Joseph G. Cannon.
William B. McKinley.
Henry T. Rainey.
James M. Graham.
Wm. A. Rodenberg.
Martin D. Foster.
Pleasant T. Chapman.

INDIANA.

John W. Boehne.
William Cullop.
William E. Cox.
Lincoln Dixon.

Ralph W. Moss.
W. O. Barnard.
Charles A. Korbly.
John A. M. Adair.
† Henry A. Barnhart.

Martin A. Morrison.
Edgar D. Crumpacker.
George W. Rauch.
Cyrus Kline.

IOWA.

* Charles A. Kennedy.
Albert F. Dawson.
Charles Pickett.

* Gilbert N. Haugen.
James W. Good.
N. E. Kendall.

* John A. T. Hull.
W. D. Jamieson.
Walter I. Smith.

Frank P. Woods.

* Elbert H. Hubbard.

KANSAS.

* Daniel R. Anthony, Jr.
Charles F. Scott.

* Philip P. Campbell.
James M. Miller.

* William A. Calderhead.
William A. Reeder.

* E. H. Madison.

* Victor Murdock.

KENTUCKY.

* Ollie M. James.
Augustus O. Stanley.
R. Y. Thomas.

* Ben Johnson.
Swagar Snerley.
Joseph L. Rhinock.

J. Campbell Conrill.
Harvey Helm.
Joseph B. Bennett.

* John W. Langley.

* Don C. Edwards.

LOUISIANA.

† Albert Estopinal.
Robert C. Davey.

* Robert F. Broussard.
John T. Watkins.
Arsené P. Pujo.

* Joseph E. Ransdell.
Robert C. Wickliffe.

MAINE.

* Amos L. Allen.

† John P. Swasey.
‡ Frank E. Guernsey.

* Edwin C. Burleigh.

MARYLAND.

* J. Harry Covington.
* Joshua F. C. Talbott.* John Kronmiller.
* John Gill, Jr.* Sydney E. Mudd.
* George A. Pearre.

MASSACHUSETTS.

* George P. Lawrence.
* Frederick H. Gillett.
* Charles G. Washburn.
* Charles Q. Tirrell.* Butler Ames.
* Augustus P. Gardner.
* Ernest W. Roberts.
* Samuel W. McCall.* John A. Keliher.
* Joseph F. O'Connell.
* Andrew J. Peters.
* John W. Weeks.

* William S. Greene.

* William C. Lovering.

MICHIGAN.

* Edwin Denby.
* Charles E. Townsend.
* Washington Gardner.
* Edward L. Hamilton.* Gerrit J. Dickema.
* Samuel W. Smith.
* Henry McMorran.
* Joseph W. Fordney.* James C. McLaughlin.
* George A. Loud.
* Francis H. Dodds.
* H. Olin Young.

MINNESOTA.

* James A. Tawney.
* W. S. Hammond.
* Charles R. Davis.* Frederick C. Stevens.
* Frank M. Nye.
* Charles A. Lindergh.* Andrew J. Volstead.
* Clarence B. Miller.
* Halvor Steenerson.

MISSISSIPPI.

* Ezekiel S. Chandler, Jr.
* Thomas Spight.* Benjamin G. Humphreys.
* T. U. Sisson.* Adam M. Byrd.
* Eaton J. Bowers.

W. J. Dickson.

J. W. Collier.

MISSOURI.

* James T. Lloyd.
* William W. Rucker.
* Joshua W. Alexander.
* Charles F. Booher.
* William P. Borland.* David A. De Armond.
* Courtney W. Hamlin.
* Dorsey W. Shackelford.
* Champ Clark.
* Richard Bartholdt.
† Arthur P. Murphy.* Patrick F. Gill.
* Harry M. Coudrey.
* Politte Elvins.
* Charles A. Crow.
† Charles H. Morgan.

MONTANA.

At Large.

* Charles N. Pray.

NEBRASKA.

* John A. Maguire.
* Gilbert M. Hitchcock.* James P. Latta.
* Edmund H. Hinshaw.* George W. Norris.
* Moses P. Kinkaid.

NEVADA.

At Large.

* George A. Bartlett.

NEW HAMPSHIRE.

* Cyrus A. Sulloway.

* Frank D. Currier.

NEW JERSEY.

* Henry C. Loudenslager.
* John J. Gardner.
* Benjamin F. Howell.* Ira W. Wood.
* Charles N. Fowler.
* William Hughes.
* James A. Hamill.* Richard Wayne Parker.
† William H. Wiley.
* Eugene F. Kinkaid.

NEW YORK.

* William W. Cocks.
* George H. Lindsay.
† Otto G. Foelker.
* Charles B. Law.
* Richard Young.
* William M. Calder, Brooklyn.
* John J. Fitzgerald.
* Daniel J. Riordan.
* Henry M. Goldfogle.
* William Sulzer.
* Charles V. Fornes.
* Michael F. Conroy.* Herbert Parsons.
* William Willett, Jr.
* J. Van Vechten Olcott.
* Francis Burton Harrison.
* William S. Bennet.
* Joseph A. Goulden.
* John E. Andrus.
* Thomas W. Bradley.
* Hamilton Fish.
* William H. Draper.
* George N. Southwick.
* George W. Fairchild.
* Edward B. Vreeland.* Cyrus Durey.
* George R. Malby.
* Charles S. Millington.
* Charles L. Knapp.
* Michael E. Driscoll.
* John W. Dwight.
* Sereno E. Payne.
* James Breck Perkins.
* J. Sloat Fassett.
* James S. Simmons.
* Daniel A. Driscoll.
* De Alva S. Alexander.

NORTH CAROLINA.

* John H. Small.
* Claude Kitchin.
* Charles R. Thomas.* Edward W. Pow.
* J. M. Morehead.
* Hannibal L. Godwin.
* J. G. Grant.* Robert N. Page.
* Charles H. Cowles.
* Edwin Y. Webb.

NORTH DAKOTA.

At Large.

L. B. Hanna.

* Asle J. Gronna.

OHIO.

* Nicholas Longworth.
* Herman P. Goebel.
* James M. Cox.
* William E. Tou Velle.
* Timothy T. Ansberry.
* Matt R. Denver.
* J. Warren Keifer.* Ralph D. Cole.
* Isaac R. Sherwood.
* A. R. Johnson.
* Albert Douglas.
* Edward L. Taylor, Jr.
* Carl Anderson.
* William G. Sharpe.* James Joyce.
* D. A. Hollingsworth.
* William A. Ashbrook.
* James Kennedy.
* W. Aubrey Thomas.
* Paul Howland.
* Theodore E. Burton.

OKLAHOMA.

- * Bird S. McGuire.
- * Charles D. Carter.
- Richard T. Morgan.
- * Scott Ferris.
- C. E. Creager.

OREGON.

- * Willis C. Hawley.
- * W. R. Ellis.

PENNSYLVANIA.

- * Henry H. Bingham.
- * Joel Cook.
- * J. Hampton Moore.
- * Reuben O. Moon.
- * W. W. Foulkrod.
- * George D. McCreary.
- * Thomas S. Butler.
- * Irving P. Wanger.
- * William M. Griest.
- * T. D. Nicholls.
- † Henry W. Palmer.
- Alfred B. Garner.
- * John H. Rothermel.
- Charles C. Pratt.
- * William B. Wilson.
- * John G. McHenry.
- * Benjamin K. Focht.
- * Marlin E. Olmsted.
- * John M. Reynolds.
- * Daniel F. Lafean.
- * Charles F. Barclay.
- * George F. Huff.
- * Allen F. Cooper.
- John K. Tener.
- * Arthur L. Bates.
- * A. Mitchell Palmer.
- J. N. Langham.
- * Nelson P. Wheeler.
- * William H. Graham.
- * John Dalzell.
- * James Francis Burke.
- * Andrew J. Barchfeld.

RHODE ISLAND.

- William P. Sheffield.
- * Adin B. Capron.

SOUTH CAROLINA.

- * George S. Legare.
- * James O. Patterson.
- * Wyatt Aiken.
- * Joseph T. Johnson.
- * Asbury F. Lever.
- * David E. Finley.
- * J. Edwin Ellerbe.

SOUTH DAKOTA.

At Large.

- † Charles H. Burke.
- †† Eben W. Martin.

TENNESSEE.

- * Walter P. Brownlow.
- R. W. Austin.
- * John A. Moon.
- * Cordell Hull.
- * William C. Houston.
- J. W. Byrnes.
- * George W. Gordon.
- * Lemuel P. Padgett.
- * Thetus W. Sims.
- * Finis J. Garrett.

TEXAS.

- * Morris Sheppard.
- Martin Dies.
- * Gordon Russell.
- * Choice B. Randell.
- * Jack Beall.
- * Rufus Hardy.
- * Alexander W. Gregg.
- * John M. Moore.
- * George F. Burgess.
- * Albert S. Burleson.
- * William R. Smith.
- * Robert L. Henry.
- * Oscar W. Gillespie.
- * John H. Stephens.
- * James L. Slayden.
- * John N. Garner.

UTAH.

At Large.

- * Joseph Howell.

VERMONT.

- * David J. Foster.
- Frank H. Plumly.

VIRGINIA.

- * William A. Jones.
- * Harry L. Maynard.
- * John Lamb.
- * Francis R. Lassiter.
- * E. W. Saunders.
- * Carter Glass.
- * Henry D. Flood.
- * James Hay.
- * Charles C. Carlin.
- * C. Bascom Slemp.

WASHINGTON.

- * William E. Humphrey.
- * Francis W. Cushman.
- Miles Poindexter.

WEST VIRGINIA.

- * William P. Hubbard.
- * George C. Sturgiss.
- * Joseph Holt Gaines.
- * Harry C. Woodyard.
- * James A. Hughes.

WISCONSIN.

- * Henry A. Cooper.
- * John M. Nelson.
- A. W. Kopp.
- * William J. Cary.
- * William H. Stafford.
- * Charles H. Weiss.
- Irvine L. Lenroot.
- * John J. Esch.
- * James H. Davidson.
- * Gustav Küstermann.
- * E. A. Morse.

WYOMING.

- * Frank W. Mondell.

TERRITORIES.

ALASKA.

James Wickersham.

ARIZONA.

Ralph H. Cameron.

NEW MEXICO.

- * William H. Andrews.

HAWAII.

- * Jonah K. Kalaniana'ole.

PORTO RICO.

Resident Commissioner.

- * Tulio Larrinaga.

PHILIPPINE ISLANDS.

Resident Commissioners.

Benito Legarda.

Pablo Ocampo de Leon.

Successors to the following Senators will be chosen by the State legislatures in 1909: Allison of Iowa, Republican; Ankeny of Washington, Republican; Brandegee of Connecticut, Republican; Clarke of Arkansas, Democrat; Clay of Georgia, Democrat; Foraker of Ohio, Republican; Fulton of Oregon, Republican; Gallinger of New Hampshire, Republican; Gary of South Carolina, Democrat; Gore of Oklahoma, Democrat; Hansbrough of North Dakota, Republican; Hemenway of Indiana, Republican; Heyburn of Idaho, Republican; Hopkins of Illinois, Republican; Kittredge of South Dakota, Republican; Long of Kansas, Republican; McEnery of Louisiana, Democrat; Milton of Florida, Democrat; Newlands of Nevada, Democrat; Overman of North Carolina, Democrat; Penrose of Pennsylvania, Republican; Perkins of California, Republican; Platt of New York, Republican; Smoot of Utah, Republican; Stephenson of Wisconsin, Republican; Stone of Missouri, Democrat; and Teller of Colorado, Democrat.

By nomination at primary elections, or by the endorsement of party conventions, the following candidates were selected in 1908: A. B. Cummins, Iowa; G. E. Chamberlain, Oregon; Thomas P. Gore, Oklahoma; Martin N. Johnson, North Dakota; Albert J. Hopkins, Illinois; Joseph L. Bristow, Kansas; D. W. Fletcher, Florida; C. J. Hughes, Colorado; Coe I. Crawford, South Dakota; Francis G. Newlands, Nevada; W. J. Stone, Missouri; W. L. Jones, Washington; Isaac Stephenson, Wisconsin. W. P. Dillingham of Vermont was elected in 1908 to succeed himself, and Carroll S. Page was elected to fill out the term of Redfield Proctor, which expires in 1911.

BROWNSVILLE INCIDENT. The agitation resulting from the action of the President in Dec., 1906, in dismissing without honor a battalion of the 25th Infantry (colored) for alleged participation in a riot at Brownsville, Texas, Aug. 13, 1906, which resulted in the death of several citizens and the injury of others, continued in both sessions of the Sixtieth Congress. The Senate Committee on Military Affairs conducted investigations during the latter part of 1907, and on Feb. 25, by a majority of 8 to 4 of its members, adopted a resolution expressing the opinion that the "shooting up" of Brownsville was done by "some of the soldiers" of the 25th United States Infantry. A majority of the Republican members of the Committee present voted against this resolution. Under the terms of the resolution through which the Committee acted, it was not permitted to pass upon the action of President Roosevelt in discharging the negro soldiers without trial. The following resolution was, however, adopted: "That the testimony fails to identify the particular soldier or soldiers participating in the shooting affair of Brownsville, Texas, on the night of Aug. 13, 1906." A bill was introduced into the Senate by Senator Foraker, who was the leader of the element which contended that the action of the President was unwarranted, providing for the restoration to the army of all discharged soldiers and allowing them back pay. On March 19, with the approval of President Roosevelt, Senator Warner, of Missouri, introduced a bill intended to permit the re-enlistment in the army of the former members of the 25th infantry, who were discharged without honor by the President on the ground that

they participated in or were engaged in a "conspiracy of silence" with reference to the shooting affray at Brownsville. The bill authorized the President to permit the re-enlistment of such of the negro soldiers as could establish, to the President's satisfaction, that they were not engaged in and had no guilty knowledge of the affray. Senator Foraker's bill provided that soldiers might re-enlist upon making oath that they were not involved in the affair. On April 14, Senator Foraker spoke in behalf of this resolution. He reviewed the evidence taken in the case by the Senate Committee on Military Affairs and declared that the testimony of alleged eye-witnesses was sufficiently contradictory to show that it was unreliable. He criticised severely the terms of the bill proposed by Senator Warner and asserted that it was without precedent for a legislative body to require men accused of crime to prove their innocence before a hostile judge, who had already adjudged them guilty. On May 13, Senator Foraker's bill came up for action in the Senate, and that body refused by practically a party vote to fix a date for action on the bill. It was finally agreed that it should go over until Dec. 16, and Senator Foraker himself voted in favor of this action.

A decision was made by Judge Hough, of the United States Circuit Court of New York City, on May 15 in a suit brought by Oscar W. Reid, one of the discharged soldiers, in which he held that President Roosevelt had authority to discharge members of the battalion. The action was brought by Reid under an act which allows the government to be sued in certain cases and was to recover the pay and emoluments accruing from the date of his discharge to the end of his enlistment, on the ground that his discharge by the President's order was illegal. Justice Hough decided that the President's right to discharge the soldiers was based on the Articles of War and that such right is explicitly recognized in these articles. The case was appealed to the Supreme Court.

Soon after the convening of the second session of the 60th Congress, on Dec. 14, President Roosevelt sent a message to the Senate on the Brownsville affair, together with a report made by Herbert J. Browne, a detective employed by the government, telling of detective work done under the direction of himself and Captain William G. Baldwin, another detective, with the object of obtaining confessions from former negro soldiers of the 25th infantry. This report contained a detailed account of alleged confessions made to the detectives by members of the battalion who were discharged, and especially by one Boyd Conyers, in which he confessed that he and others whom he named had organized and carried out the raid in order to revenge themselves for real or fancied slights put upon them by citizens of Brownsville. The President affirmed that this report, together with other statements, established clearly that the colored soldiers did the shooting and fixed with tolerable definiteness at least some of those who took part in the shooting at Brownsville. He said that the evidence was incomplete and that further investigations were being carried on. He recommended that a law be passed permitting the Secretary of War within a fixed period to reinstate any soldiers found to have been innocent, who will do all in their power to bring the guilty to justice. After the message had been delivered to the Senate, but before it had

been read, or he had knowledge of its contents, Senator Foraker presented an amendment to his bill for the reinstatement of the discharged negro soldiers, providing that a commission of retired army officers of general rank should be appointed to investigate the Brownsville affair. In presenting his amendment, Senator Foraker read some letters received by him from the soldier, Conyers, mentioned in the message of the President, in which Conyers declared that attempts had been made to intimidate him into making a confession. Browne, the detective, in his report, affirmed that a letter written by Senator Foraker in reply to this had been "extremely obstructive" and that Conyers seemed to regard it as a mandate to adhere to the false story told by him before the Senate Committee on Military Affairs, and as absolving him from any and all obligations to aid in uncovering the truth. The sentence in Senator Foraker's letter to which this statement applies is as follows: "I remember you very well as a witness before the Committee, and I am sure you did not there testify to anything except only the truth."

On Dec. 16 Senator Lodge made a speech in the Senate in defense of the President's action, although he disavowed any responsibility for the information sent by the President to the Senate in the special message transmitting the report of the investigation by Browne and Baldwin. Senator Lodge insisted that Senator Foraker's bill which proposed to compel the President to reinstate the discharged men was an unconstitutional usurpation of executive authority. At Senator Foraker's request, further discussion of the question was put over until after the holiday adjournment. The Senate passed a resolution offered by Senator Foraker, calling on the Secretary of War for information regarding the employment of detectives in connection with the Brownsville affray.

INTERNAL WATERWAYS AND NATIONAL RESOURCES. The Internal Waterways Commission, which was appointed early in 1907 and continued its investigation during the year, made a preliminary report, which, on Feb. 26, President Roosevelt sent to Congress with a special message. Regarding this report, the President says: "The commission finds that it was unregulated railroad competition which prevented or destroyed development of commerce on our inland waterways." The report says that commerce was driven from the Mississippi by the railroads while protection was limited to railroads with their convenient terminals giving quicker and more satisfactory service than the waterways. Later, they prevented the restoration of river traffic, by keeping down their rates along the rivers, recouping themselves by higher rates elsewhere. They also acquired water fronts and terminals to an extent which made water competition impossible. The President recommended that adequate funds should be provided by bond issue, if necessary, to improve the inland waterways so that they should be available to their full capacity. The commission in its report recommended that any plans for improving the inland waterways should take account of the present and prospective relation of rail lines to such waterways, and shall ascertain as far as may be whether such waterways when improved will be effectively used in the face of railway competition, and that the relation between railways and waterways be further examined, with the purpose of devising means

of rendering the two systems complementary and harmonious and making such fair division of traffic that rates and management may be coordinated economically and with benefit to the country. The commission recommended also that Congress be asked to make suitable provision for improving the inland waterways of the United States at a rate commensurate with the needs of the people, as determined by competent authorities. Congress failed to take any action on these recommendations, and it failed further to provide for the continued existence of the Inland Waterways Commission. President Roosevelt therefore continued it by executive act and reappointed the former members.

A unique and important conference on the conservation of national resources was begun in Washington on May 13 when the governors, and representatives from all the States of the Union, met at the invitation of President Roosevelt. Many of the most eminent men in business and politics were in attendance and made addresses. Among the most notable addresses were those delivered by Andrew Carnegie on iron and coal in relation to their exhaustion; Elihu Root, urging the States to exercise their sovereignties in preserving their natural resources; James J. Hill, on the wasteful use of the soil. Other speakers were William J. Bryan, John Mitchell, Governor Glenn of North Carolina, Gifford Pinchot, and James R. Garfield, Secretary of the Interior. A committee was appointed to compile statistics of national resources and consider the matter of further conference, and it was resolved that another should be held in 1909. The President on June 8 appointed a national conservation commission of forty-eight members, representing the various States and Territories, including in its membership several Senators and Representatives in Congress, as well as other prominent men interested in the subject of conservation of the nation's resources. This body met in Washington on Dec. 1 and following days under the presidency of Gifford Pinchot, national forester, to prepare a report to the President for transmission to Congress on the resources of the country. The work was divided into four sections, dealing with water, land, forests and minerals, and a day was given to the discussion of each of these subjects and the compilation of inventories and statistics which had been gathered from government reports and the compilations of statisticians, under direction of the committee. At this meeting a joint committee on coöperation was authorized to be composed of six members of State conservation commissions and three members of the national commission to devise ways and means for coöperative work.

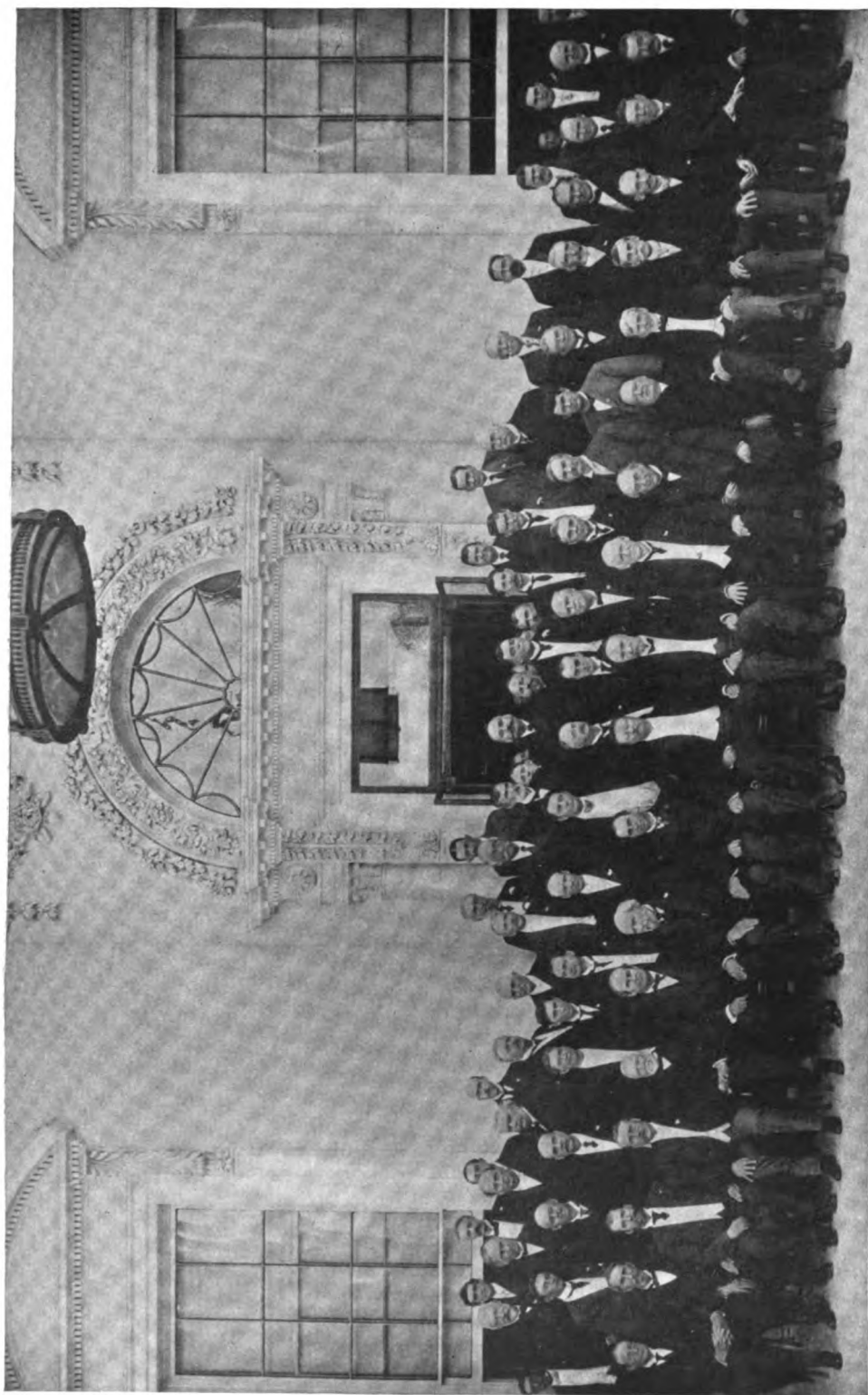
The movement for a waterway along the Atlantic coast found expression in the second annual convention of the Atlantic Deep Waterways Association, held in Baltimore in November. More than 500 delegates were in attendance, representing almost every important commercial organization of the seaboard cities. Addresses were made by Rear-Admiral George W. Melville, John F. Stevens, and others. The Lakes-to-the-Gulf Deep Waterway Association, an organization formed to further the development of the Great Lakes and the Mississippi and its branches, met in Chicago on Oct. 7-9. Addresses were made by William J. Bryan and William H. Taft.

The National Rivers and Harbors Congress, composed of nearly 3,000 delegates from forty-four States and Territories, held sessions in Washington from Dec. 9 to Dec. 12. Addresses were made by William H. Taft, Vice-President Fairbanks, President Ransdell, of the Congress, Andrew Carnegie, Joseph G. Cannon, and others. The congress adopted resolutions commending the conservation of the natural resources of the country, and recommending delay until waterway improvement, which it held to be imperative, was well under way. It was resolved that a committee of five should be appointed to draft a bill for introduction into the House of Representatives providing for a bond issue of \$500,000,000 to carry into effect waterway improvement, the provisions for the issuance of these bonds to be similar to those authorizing the bonds for the construction of the Panama Canal. Congress was urged to complete river and harbor projects calculated to fit into and carry into effective use any large, comprehensive, and connected waterway system that may be subsequently adopted. The creation by statute of a commission to study the waterways of this and foreign countries in order to suggest to Congress plans for the expenditure of the money as recommended. Congress was asked also to double the corps of engineers of the army and to give authority to the corps to formulate and propose to Congress plans and projects for river and harbor improvements.

The International Waterways Commission, composed of members from Canada and from the United States to investigate and report upon the waterways of the boundary line between the United States and Canada, made its report on Jan. 5. The commission submitted a report to the two governments recommending that the government of the United States prohibit the diversion of more than 10,000 cubic feet of water per second from the Chicago drainage canal. The commission also submitted a report to the two governments on the international boundary line in Lake Erie, which was a matter of dispute, and out of which grew the seizure by the Canadian vessel *Vigilant*, in Aug., 1906, of a number of fishing nets placed in the middle of the lake by an American fishing company. The report recommended that the commission be authorized to locate, lay down upon a modern chart, and mark the boundary line through Lake Erie.

TREATIES. The year was notable for the number of arbitration treaties ratified between the United States and foreign countries. During the session of Congress the Senate ratified such treaties with the following countries: France, Italy, Mexico, Switzerland, Norway, Sweden, Denmark, Spain, Portugal, Japan, Great Britain, and Netherlands. These treaties are practically identical in form and the first article in each, which reads as follows, will give an indication of their general content: "Differences may arise of a local nature relating to the interpretation of treaties existing between the two contracting parties and which it may not be possible to settle by diplomacy. It shall be referred to the permanent court of arbitration, established at the Hague by the convention of the 29th of July, 1899, providing, nevertheless, that they do not affect the vital interest, independence or the honor of the two contracting States and do not concern the interests of a third party." The treaty with Great Britain

contained, in addition, the reservation that "any matter affecting the interests of a self-governing dominion of the British Empire, is to obtain the concurrence therein of the government of that dominion." As almost all the difficulties between the United States and Great Britain are the outcome of questions relating to Canada, this clause was taken to be the admission of the right of Canada to concur in any treaties or arrangements made between the United States and Great Britain. The ratification of the treaty with Japan was of especial interest, as it marks the first definite result of the resumption of treaty negotiations which were discontinued in the winter of 1906 on account of the assault of Japanese subjects in San Francisco. It is the first arbitration treaty negotiated between Japan and the United States. Negotiations were carried on during the year with Germany for the conclusion of an arbitration treaty. A treaty of arbitration was also signed on Oct. 1 by Secretary Root and Wu Ting Fang, the Chinese minister. The provisions of the treaty follow those negotiated with the countries mentioned above. The first arbitration treaty between the United States and countries of South America was that signed on Dec. 5 by Secretary Root and Mr. Pardo, the Peruvian minister to the United States. In addition to these arbitration treaties the Senate confirmed the adherence of the United States to the convention adopted by the Pan-American conference at Rio de Janeiro in 1906, providing that when a naturalized citizen returns to his native country for a period of two years, that fact shall constitute a renunciation of the acquired citizenship. This convention was agreed upon by the eighteen countries taking part in the Rio Conference. Two additional treaties were ratified with Great Britain. They refer to the question of the boundary line between the United States and Canada and to the question of fisheries. The boundary treaty provides for a commission to determine the boundary between the United States and Canada. The main features of the fisheries treaty provide for the appointment of a joint high commission consisting of two members for each country, who shall have the power to settle all administrative details and adopt regulations for the fisheries. The convention includes all the inland boundary waters between Passamaquoddy Bay, New Brunswick, and Puget Sound, and remains in force four years, after which time the convention may be abrogated upon one year's notice of either of the contracting parties. The Senate ratified the treaties adopted by the Hague Peace Conference relating to the opening of hostilities; the laws and customs of war on land; rights and duties of neutral powers and persons in case of war on land; the laying of automatic submarine contact mines; the bombardment by naval officers in time of war; the adaptation to naval war of the principle of the Geneva convention; prohibiting the discharge of projectiles and explosives from balloons or by any other methods of a similar nature; and a convention rendering inviolable postal correspondence of neutrals or belligerents on the high seas on board a neutral or an enemy's ship, and exempting from capture fishing vessels and vessels engaged in religious, scientific, or philanthropic missions. The convention signed at the Hague Conference for the settlement of international disputes by arbitration was also ratified by the Senate, as was



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CONGRESS FOR THE CONSERVATION OF NATURAL RESOURCES HELD IN WASHINGTON IN 1908

**PRESIDENT ROOSEVELT, VICE-PRESIDENT FAIRBANKS, GOVERNORS OF THE STATES, AND NOTABLE GUESTS
PHOTOGRAPHED AT THE DOORS OF THE WHITE HOUSE**

Seated from left to right: Governor Dawson of West Virginia, Governor Harris of Ohio, Governor Hughes of New York, Governor Davidson of Wisconsin, Andrew Carnegie, William J. Bryan, James J. Hill, John Mitchell, President Roosevelt, Vice President Fairbanks, Justice Harlan, Justice Brewer, Justice McKenna, Justice White, Justice Holmes, Justice Day, Justice Moody, Secretary Cortelyou. The most prominent figure in the background, second from the doorway on the right, is Governor Johnson of Minnesota.

the provision for the establishment of an international prize court and the provision relating to the recovery of contract debts by the employment of force. A tariff agreement was negotiated with France under the authority of the Dingley Tariff Act and went into effect on Feb. 1. The most important feature of the agreement is the abatement of 20 per cent of the duty on champagne imported into the United States. France, in turn, agreed to impose only the minimum rates on Porto Rican coffee and mineral oils. Under the terms of the agreement a board of three experts from each country is to be appointed to investigate and report on the customs administrative systems of both countries. The agreement will remain in force until the President of either country gives notice to the other country, on account of any advance of duty imposed by one country upon the commerce of the other. The commissioners appointed to make preliminary arrangements for the new reciprocity treaty between the two countries held session in France during the year. Extradition treaties were ratified between Spain and the United States, and negotiations were carried on for an extradition treaty between the United States and Honduras.

AGREEMENT WITH JAPAN. Perhaps the most notable diplomatic incident of the year was the agreement between the United States and Japan, which took the form of an exchange of notes between Elihu Root, Secretary of State, and Baron Kogoro Takahira, the Japanese ambassador, dated Dec. 1. This agreement marks the culmination of a plan inspired by Mr. Root over two years ago and is a continuation of the policy toward Japan inaugurated by John Hay in 1900. The agreement is in no way a treaty and is not legally binding between the two countries. Neither does it require any action by the Senate. The text of the agreement follows:

1. It is the wish of the two governments to encourage the free and peaceful development of their commerce on the Pacific Ocean.
2. The policy of both governments, uninfluenced by any aggressive tendencies, is directed to the maintenance of the existing status quo in the region above mentioned and to the defense of the principle of equal opportunity for commerce and industry in China.
3. They are accordingly firmly resolved reciprocally to respect the territorial possessions belonging to each other in said region.
4. They are also determined to preserve the common interests of all powers in China by supporting by all pacific means at their disposal the independence and integrity of China and the principle of equal opportunity for commerce and industry of all nations in that empire.
5. Should any event occur threatening the status quo as above described or the principle of equal opportunity as above defined it remains for the two governments to communicate with each other in order to arrive at an understanding as to what measures they may consider it useful to take.

The intent and purpose of the agreement was made plain in a statement issued by Baron Takahira at the time it was made public. He said:

"As will be seen in their wording, the notes are in the form of a declaration and are not a treaty or agreement. They are simply a reaffirmation of what was declared by the two govern-

ments years ago, or a definition of the understanding already existing. It is, however, to be noted that the notes which are exchanged between governments of great moral standing, as those of the United States and Japan, will have a great importance in the carrying out of their common policy.

"Japan has entire confidence in the great moral strength of the United States government, and that the latter fully trust in the strong good faith of the Japanese government has been amply proved by past experience. In this respect it is something like a transaction between trusted friends and it is sincerely to be hoped that the people of each country will have the same confidence as their own government in respect to the declaration of the other, and in doing so there will be everything to gain and nothing to lose, and friendly intercourse and commercial relations will be fully developed."

It was generally believed by statesmen of both countries that this agreement would be the final solution of the difficulties which had been pending for several years between the two countries.

FOREIGN RELATIONS. The relations of the United States with its immediate neighbors on the north and south were unbrokenly cordial during the year. The two treaties made with Great Britain, noted in the paragraph on *Treaties*, arranged for settlement of the questions pending in regard to inland fisheries and to the boundary between CANADA and the United States. A clause incorporated in the general arbitration treaty with Great Britain, providing that all matters at issue relating to the colonies of Great Britain should be submitted to those colonies for approval, was generally taken to mean that Canada was to have a voice in the settlement of matters relating to her interests, pending, or which should pend, between the United States and Great Britain. Vice-President Fairbanks visited Quebec as a representative of the United States in the celebration of the anniversary of the capture of Quebec by General Wolfe and was most cordially received. A movement to associate Canada with the United States in the preservation and conservation of national resources was begun by action of President Roosevelt late in December, in issuing invitations for representatives of Canada and Mexico to join in a conference to be held at the White House on Feb. 18, 1909. Gifford Pinchot, chief forester, visited Canada as the personal representative of President Roosevelt to carry this invitation to the governor-general and the premier of Canada. During and following the insurrections which took place in MEXICO in July, many of the insurrectionists took refuge in Texas and from there made occasional raids into Mexico. On complaint of the Mexican governor, President Roosevelt took stringent measures to suppress these insurrectionists and 15 persons were arrested on Aug. 10 along the Texas border for violation of the neutrality laws in inciting riots and conspiracies. A valuable tract of coal land, bordering on the Rio Grande river, known as Barroteran, passed from the jurisdiction of Mexico to that of the United States, according to the decision of a commission, which was appointed definitely to settle the dispute which has been in progress for several years.

Threatened trouble between PANAMA and Colombia, arising from seizure of the town of

Jurado by Colombian troops, in the latter part of March, resulted in an appeal by the Republic of Panama to the State Department for aid. Secretary Taft in May visited Panama and had conferences with representatives of the Panamanian and Colombian governments and succeeded in obtaining a tentative agreement between them. Troubles threatened also in the election for the presidency of Panama, due to strife among the different factions, and these, too, were adjusted by Mr. Taft. Representations had been made that there was likely to be great fraud in the elections to be held for the presidency on the 12th of July, and these matters having been brought to the attention of the State department, it was pointed out to the Panamanian government that if such frauds were permitted they would be likely to lead to violence, riot, and insurrection, contrary to the interests of the United States, and that it would then be the duty of the United States to preserve order under the treaty and the Constitution of Panama. As a result of this action, it was arranged that a commission of electoral inquiry should be created with full power to investigate the complaints of all parties, and the United States was given power to join in this inquiry, with ample rights of examining witnesses and making such other investigation as should be necessary. An official declaration was made by Panama that it desired and assured an open, fair and free election. In spite of this arrangement, as the date of the election drew near, the bitterness between the factions grew so intense that danger of a revolution was feared and United States marines were dispatched to the Isthmus to guard against an uprising. The electoral investigation, made as provided above, revealed the fact that reports of irregularities in registration had been greatly exaggerated. The election passed off quietly and the results showed the fulfilment of the assurances of the Panama government that it would be honestly and impartially conducted, and that order would be maintained.

The relations of the United States with the CENTRAL AMERICAN States, with the exception of Honduras, as noted below, were peaceful during the year, although in July there were indications of possible disorders. A conference was held between Acting-Secretary Bacon and several representatives of the Central American republics and notices were issued to these governments that strict neutrality must be observed under penalty of discipline from the United States, and Mexico, which state was a party to the understanding. In the latter part of July, President Davila of HONDURAS suddenly canceled the exequaturs of all the foreign consuls in Ceiba, including that of United States Consul Drew Linard. The charge was made that the consuls were in touch with the revolutionists, who were heading the insurrection against President Davila, under the leadership of General Bonilla, former president of the republic. The State department at once demanded an explanation of the action of the government of Honduras, and President Davila responded by forwarding the decree of expulsion, which set forth that the consuls had been in communication with the insurgent forces that were besieging Ceiba; had advised the surrender of the government forces to the revolutionary army of inferior numbers; and had also greatly exaggerated the strength of the enemy. H. Percival

Dodge, the United States minister to Honduras, investigated the matter and reported that the consuls were blameless; and, acting under instructions of the State department, he presented to the government of President Davila a sharp rejoinder, denying the facts upon which the decree was based. No conclusion of the affair had been reached at the close of the year. Only a few months prior to this had diplomatic relations with Honduras been resumed after a long interruption. The United States gunboat *Maricetta* was stationed on the coast of Honduras during the progress of the revolution, but took no active part.

During the progress of the revolution in HAITI, which resulted in the accession of General Simon to the presidency, American vessels were present off the coast of Haiti to protect the interests of American citizens on the island. On Dec. 17, Secretary Root instructed the American minister at Port Au Prince to notify General Simon that the United States had formally recognized the new government, established by him. This action was taken on receipt of the information that General Simon had been unanimously elected president by the Haitian Congress. The relations of the United States with CUBA were without especial incident during the year and they will be found discussed in the article CUBA.

The only difficulties with the countries of South America were those which the United States shared with European countries in connection with affairs in VENEZUELA. Certain claims had long been pending between the two countries, based chiefly on the asphalt concessions granted to American companies by the Venezuelan government. These claims were those of the New York and Bermudez Company, a branch of the General Asphalt Company; the Orinoco Steamship Company; the Orinoco Corporation; and the United States and Venezuelan Company. Another claim grew from the expulsion from Venezuela of A. F. Jaurett, who had conducted a newspaper in Caracas and had been expelled by President Castro on the ground that he had abetted revolution. Attempts had been made to arrange for an arbitration of these claims, but Venezuela gave a final refusal in July, 1907, on the ground that they were separate and should be arbitrated separately and not as a whole, as Venezuela claimed was proposed by the United States. Secretary Root then proposed that the claims be arbitrated separately, but this proposal was rejected early in March, 1908. On March 20, the High Federal Court of Venezuela handed down a decision from which there was no appeal, against the Manao Company and the Orinoco Company, Limited, American concerns, annulling the concessions under which these companies claimed rights in Venezuela. The claims of these companies were included in the matters in dispute between the two governments.

In response to a request from the United States Senate, the State department on March 25 sent to the Senate the special report of William J. Calhoun on the controversy between the New York and Bermudez Company and the government of Venezuela. This report was made in 1905 at the request of President Roosevelt. Mr. Calhoun at that time made a thorough investigation of the dispute and the conclusions at which he had arrived were as follows: First: that the Venezuelan government was entitled to

the action of forfeiture or cancelation of the Hamilton contract because the Bermudez Company had not performed the obligation assumed by it to explore and exploit natural products of the forest and uncultivated land in the State of Bermudez; second, that the sequestration of the company's property as an incident to the adjudication of the cancelation of the Hamilton contract was not justified; third, that the assessment of damages against the Bermudez Company for the breach of the Hamilton contract was made without the company's having a hearing and without any sufficient evidence of the facts upon which the assessment was based; fourth, that the land titles of the company for which it had actually paid a money consideration to the government were ignored in the sequestration proceedings, and that the continued possession of the property by the government was in contravention thereof. On March 30 the Secretary of State sent to the Senate the correspondence between the United States and the government of President Castro on the subject of the American claims, together with a memorandum reviewing the five claims which had been the cause of the controversy. This correspondence revealed the fact that Secretary Root had made numerous efforts to secure justice for the American claims at the hands of President Castro and in the Venezuelan courts, but that his labors had been in vain. President Castro was charged with ignoring all principles of right and justice and taking away from American citizens rights acquired in accordance with the laws of Venezuela.

Late in June diplomatic relations with Venezuela were practically broken off when Jacob Sleeper, secretary of the legation and chargé d'affaires, was recalled by the United States government. This action resulted from the continued refusal of President Castro to arbitrate the claims at issue. It was said that the action of the United States in severing the diplomatic relations was not intended as a threat, but that under the existing condition of affairs the State department did not care to risk the lives of its diplomatic officers in Venezuela, where the plague was prevalent, and where it was felt that they could serve no useful purpose. This action of the United States government was followed on July 9 by the recalling by President Castro of the Venezuelan chargé d'affaires. This action completed the breach in the diplomatic relations between the United States and Venezuela. When Holland in August prepared to take active coercive measures against Venezuela an understanding was said to have been arrived at between the government of Holland and that of the United States, whereby the latter agreed not to interfere in any action to be taken by Holland, providing that Venezuelan territory was not occupied.

The departure of President Castro for Europe in December, and the sudden bloodless revolution which followed and resulted in the accession of the vice-president, Juan Vincente Gomez, to the presidency, brought an end to the strained relations between the two countries. President Gomez completely reversed the foreign policy of President Castro toward the United States and made known his earnest desire that the matters at issue might be peaceably settled. The attitude of President Gomez was made plain to Secretary Root by the Brazilian ambassador in Washington, with whom the Brazilian minister

at Caracas had communicated. Secretary Root formally requested the Navy Department to send an adequate naval force to Venezuela, and at the same time commissioned William I. Buchanan, former minister to the Panama republic, a diplomatist of long experience in South American politics, to act as special commissioner on the part of the United States in the negotiations for the resumption of friendly relations. The battleship *Maine*, the armored cruiser *North Carolina*, the cruiser *Des Moines*, and the dispatch boat *Dolphin* were ordered to Venezuelan waters. Mr. Buchanan was carried as a passenger on the *North Carolina*, and indications at the close of the year were that peaceful settlement would be made of the troubles pending between the two countries.

The visit of the United States fleet to Rio de Janeiro on its way to the Pacific was accompanied by a remarkable display of enthusiastic welcome, and afforded a sincere indication of the friendship toward the United States felt by the government and people of BRAZIL. Considerable interest was shown in the national exhibition held in Rio de Janeiro during the past summer, and many persons from the United States, attended it. ARGENTINA, CHILE and PERU took advantage of the passage of the United States fleet by their coast to indicate their friendly feelings toward the United States. It is an undoubted fact that this cruise along the shores of the South American republics had a marked influence in cementing the friendly relations which had been so greatly furthered by the visit of Secretary Root to South American countries in 1907.

The most important transactions between the United States and GREAT BRITAIN during the year were included in the negotiation and signing of the treaties indicated above and in the paragraph *Treaties*. The *modus vivendi* regarding the Newfoundland fisheries perfected in 1907, pending arbitration at the Hague conference, was continued by agreement between the United States and Great Britain through 1908. A postal arrangement was made whereby a postal rate of two cents an ounce for letters went into effect on Oct. 1. In addition to the arbitration treaty with FRANCE, mentioned in the paragraph on *Treaties*, the most important event between France and the United States was the announcement on Jan. 28 by President Roosevelt of the conclusion of the reciprocity agreement made between the two countries under the Dingley act. Negotiations were carried on during the summer for a new treaty; on Aug. 14 the completion of the basis of a tariff treaty was laid and on Sept. 1 the commission which had been conducting negotiations completed its work. The appointment of Dr. David J. Hill as minister to GERMANY to succeed Charlemagne Tower, who had resigned in 1907, gave occasion to a great deal of unpleasant newspaper gossip owing to reports alleged to have been received from Berlin that Mr. Hill was not acceptable to the German Emperor, chiefly for personal and social reasons. On the publication of this report the German foreign office issued a statement denying the truth of these assertions. Mr. Hill's nomination was unanimously ratified by the Senate on March 31, and he was received in Berlin with the utmost friendliness. An arrangement was made with Germany on Dec. 1 for a 2-cent postage rate on letters, similar to that concluded with Great Britain, the rate to go into effect on

Jan. 1, 1909. This rate applies only to mails transported directly between ports of the United States and Germany, and not to mails carried by steamships calling at English ports.

On Jan. 14, the United States received from SPAIN \$570,000 in full payment of the principal of the Spanish indemnity claims. These claims were the result of depredations of Spanish privateers upon American commerce and of the war between Spain and the American colonies. On June 16 a new postal convention was concluded with ITALY which comprises special arrangements for the transmission of parcels. The refusal of the American consul at Harbin, Manchuria, to recognize the municipal government established by RUSSIA, gave rise to temporary friction which was allayed by the prompt action of the State Department. The consul refused to recognize any authority in Manchuria except that of China, but it was found on investigation that his objections to full recognition of Russian authority were based rather upon the form upon which the Russian local officials proposed to attain their object than the objects themselves. The American consul, Mr. Fisher, was the only foreign official who supported the protests of China against Russian claims. Secretary Root informed the Russian government that Mr. Fisher's action would be supported. An understanding was arrived at between Secretary Root and Baron Rosen, Russian ambassador, by which the threatened friction was allayed. (See CHINA.) The attempt of the Russian authorities to extradite refugees accused of offenses in Russia gave rise to a great deal of discussion during the year. The most conspicuous of these were the cases of Janoff Pouren and Christian Rudowitz, both of whom had fled to this country after the failure of revolutionary attempts in Russia. Pouren was accused by the Russian authorities of attempted murder, robbery, arson, etc. Hearings were held in extradition proceedings before the United States Commissioner in New York City, and Pouren was found guilty and ordered to be deported. Secretary Root refused the issue of a warrant for extradition and ordered a retrial on the ground that it had not been established that Pouren's offenses were not political. Similar action was taken in the case of Rudowitz. The domestic troubles in TURKEY resulted in the recalling of the Turkish minister, Mehmed Ali Bey, and Mundji Bey, the Turkish consul-general at New York, became temporarily chargé d'affaires. The Turkish Legation was raised to ambassadorship to correspond with similar action recently taken in regard to the American Legation in Turkey.

An arbitration treaty was signed with CHINA on Aug. 8. The action of Congress in voting to reduce by about one-half the indemnity of \$24,440,778 imposed upon China on account of the Boxer disturbances of 1900 was received in China with warmest feelings of gratitude. Tang Shao Yi, governor of Mukden Province, was sent by the Chinese government as special ambassador to express the thanks of China to the United States government. He arrived in San Francisco on Nov. 22. It was announced by the Chinese government that the sum remitted should be used to send Chinese students to the United States, and it was stated that from the year when the return of the indemnity begins, 100 students shall be sent to America every year for four years, so that 400 students may be in America by the fourth year, and from

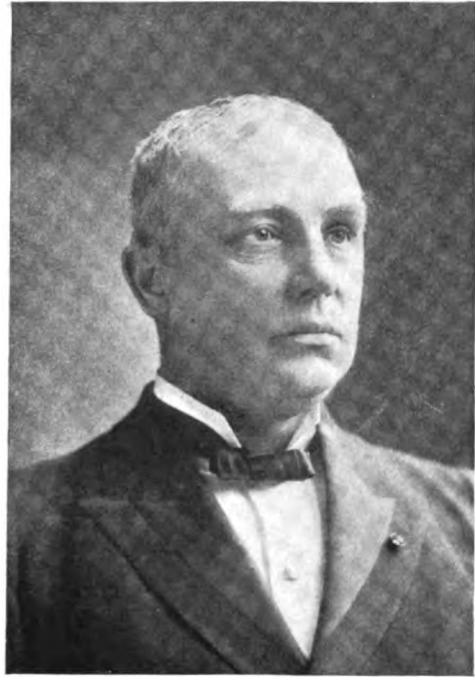
the fifth year, throughout the period of the indemnity payments, a minimum of 50 students will be sent each year. The matter of raising the American Legation at Peking and the Chinese Legation at Washington to embassies was discussed during the latter part of the year, but no conclusion was reached. The American fleet visited Amoy on its Pacific cruise, and was most cordially received.

Discussions and negotiations were carried on during the year in regard to the difficulties pending between the United States and JAPAN on the question of immigration of Japanese coolies to this country and other matters. These culminated in the agreement with Japan noted in the paragraph above. In spite of the publication of many rumors in the press to the effect that many disagreements were being met with in these negotiations, they were carried on between the two governments with the utmost good feeling and with the evident intention on the part of Japan that the grievances complained of by the United States should be checked by all means within its power. In the latter part of 1907, Secretary Root sent to the Japanese government certain suggestions as a basis for bringing about the amicable settlement of the differences between the two countries. These suggestions were understood to be the result of reports of the Immigration Bureau that in spite of the agreement between Japan and the United States by which Japan was to restrict its coolie immigration to continental America, more Japanese coolies were entering the United States than ever before. The Japanese government on Dec. 31 replied to this note, accepting some of the American suggestions and outlining certain plans by which immigration of laborers might be restricted. It was claimed, however, that the statistics of Japanese immigration presented by the State Department were incorrect. On Jan. 25 a memorandum was submitted by Secretary Root suggesting that the difference between American and Japanese statistics might be the result of frauds practised upon the Japanese government. On Feb. 17 a paper was sent to the American ambassador, Mr. O'Brien, outlining, on the part of Japan, plans for the restriction of immigration and the settlement of all differences existing between the two countries. On March 17 the United States sent its reply, approving the suggestions of Japan for the issuance of future passport regulations for the restriction of Japanese coolie laborers from going to the United States. The Japanese government had already issued a regulation providing that no Japanese coolie laborers should be allowed to leave Japan for Hawaii, except when they had relatives in Hawaii. The cordial feeling between the two countries was shown by the warm invitation extended by the Japanese government to the President, that the American fleet should visit Japan on its cruise in the Pacific. This invitation was accepted and the visiting fleet was received with remarkable demonstrations of friendship. Cablegrams were exchanged between the Mikado and President Roosevelt expressing the pleasure of both that the visit had been made. A general treaty of arbitration was ratified by the two countries as noted in the paragraph on *Treaties* above. Conventions were also signed on May 21 in regard to copyrights and inventions in Japan. On Aug. 15 it was announced that two Japanese poaching vessels had been captured by



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CYRUS NORTHROP
University of Minnesota



Copyright 1892, by Gibson Art Galleries

E. BENJAMIN ANDREWS
University of Nebraska



JAMES B. ANGELL
University of Michigan



CHARLES W. ELIOT
Harvard University

FOUR COLLEGE PRESIDENTS RESIGNING FROM ACTIVE SERVICE IN 1908

the revenue cutter *Bear* near St. Paul's Island, the chief island of the Seal group in the Bering Sea.

The visit of the American fleet, cruising in the Pacific, to AUSTRALIA and NEW ZEALAND resulted in bringing the United States and those countries into closer and more friendly relations than ever before. The fleet was received with the heartiest welcome in all the ports at which visits were made, and no efforts were spared to convince the United States of the friendly feeling that existed in these Pacific dependencies of Great Britain.

UNITED STATES MILITARY ACADEMY. West Point, N. Y., founded in 1802. During the academic year 1907, 106 officers and instructors were on duty at the military academy, including eight professors, two assistant professors, and 83 other commissioned officers. The strength of the corps of cadets as authorized by law is 533. Five foreign cadets, two of whom were from Costa Rica, two from China, and one from Venezuela, received instruction in addition to 417 cadets borne on the rolls of the Academy. The class graduated Feb. 14, 1908, numbered 108 cadets; 32 were discharged for deficiency in study, four for physical disability, 16 resigned, and two were dismissed. For the examinations for admission, held in January and February, 1908, 461 candidates were appointed, including principals and alternates, and also five former cadets. Of these 127 qualified and were admitted in March. The superintendent called attention in his annual report to the large and increasing number of appointees who failed to report and to the fact that the corps of cadets contained 116 vacancies, especially in view of the fact that educated officers for the United States army were in great demand. Satisfactory discipline was maintained during the academic year until July 4th, when breaches of discipline developed, resulting in the dismissal of two first-class men and the suspension for one year of six third-class men, with the effect that the usual high standard was maintained. For military administration the corps of cadets was changed to a two-battalion organization, and this step was rendered necessary also by the occupation of the new barracks and the increased size of the corps. Practical instruction was given to the first-class cadets at the Watervliet Arsenal, and at Fort H. G. Wright, and a new six-inch battery for coast defense was installed at the Academy. A provisional department of English History was established at the Academy and Professor John Chester Adams of Yale University was appointed as acting professor. The following buildings were in course of construction or under contract during the year: Post Headquarters Building; North Bachelor Quarters; Gymnasium; Battalion Guardhouse; Chaplain's Quarters and Chapel; four double sets of officers' quarters. The next buildings to be erected are the Riding Hall, the north wing of the North Cadet Barracks, and one triple set of officers' quarters. By Act of Congress approved May 28, 1908, the Board of Visitors to the Military Academy was made to consist of five members of the Committee on Military Affairs of the Senate, and seven members of the Committee on Military Affairs of the House of Representatives, to be appointed by the respective chairmen instead of a Board

of distinguished citizens appointed by the President, Vice-President, and the Speaker of the House of Representatives. The Board of 1908 appointed by the President, being superseded by this Act, had no official existence, but nevertheless acted in such capacity and submitted an informal report to the President. This innovation failed to receive the approval of the Superintendent of the Military Academy. During the year Mrs. Margaret Olivia Sage purchased Constitution Island and became with Miss Anna Bartlett Warner a joint donor of this land to the United States for the use of the Military Academy. Col H. L. Scott is superintendent.

UNITED STATES NAVAL ACADEMY. Annapolis, Md., founded in 1845. The attendance in 1907-08 was 854; in the autumn of 1908, 811. Candidates and alternates to fill vacancies in the Naval Academy are nominated upon the recommendation of a senator, representative, or delegate in Congress, such recommendation being made by the fourth day of March of the year following that in which notice is given by the Secretary of the Navy of a vacancy existing at the Naval Academy. If recommendation is not made by this date the Secretary of the Navy is authorized to fill the vacancy by the appointment of an actual resident of the State congressional district or territory in which the vacancy exists. During the year further progress was made with the new buildings for the Naval Academy and a number of these are now complete. Tuition at the academy is free, and students are allowed \$600 annually by the government for living expenses. Captain C. J. Badger, U. S. N., is superintendent.

UNIVERSALISTS. A religious denomination, whose distinctive tenet is the salvation finally of all men. The first church in the United States was established at Gloucester, Mass., in 1799. The church numbered in 1908 53,158 communicants, 925 parishes, and 724 ministers. The Sunday schools had a membership of 45,574. The parish property was valued at \$10,492,509, and the parish expenses and contributions for the year amounted to \$1,127,773.77. The permanent funds of the General Convention amounted to \$387,251, and of all the conventions, \$952,978. Foreign missions are sustained in Japan and domestic missions are actively carried on in ten States. The educational institutions under the auspices of the denomination include Tufts College at Medford, Mass.; St. Lawrence University at Canton, N. Y.; Buchtel College at Akron, Ohio; and Lombard College at Galesburg, Ill.; together with Dean Academy, Franklin, Mass.; Westbrook Seminary, Deering, Me., and Goddard Seminary, Barre, Vt. The next session of the General Convention will be held in Detroit, Mich., in October, 1909.

UNIVERSITIES, AMERICAN ASSOCIATION OF. See ASSOCIATION OF AMERICAN UNIVERSITIES.

UNIVERSITIES AND COLLEGES. Seven American universities registered more than 4,000 students in 1908: Columbia, 5,675; Harvard, 5,342; Michigan, 5,188; Chicago, 4,700; Minnesota, 4,687; Pennsylvania, 4,555; and Illinois, 4,400. The figures for 1907 were: Harvard, 5,346; Columbia, 5,197; Michigan, 4,953; Chicago, 4,594; Cornell, 4,293; Minnesota, 4,207; Illinois, 4,172; and Pennsylvania, 4,134. Six institutions—Chicago, Columbia, Harvard, Mich-

igan, Wisconsin, and Indiana—registered more than 1,000 students in the summer session of 1908. In general there were more men than women at Eastern universities, more women than men at those in the West. All of the Eastern colleges for women, except Bryn Mawr, gained in numbers. Harvard continued to have the largest number of academic, Cornell of scientific, and Columbia of graduate students. The largest schools of education and of pharmacy were at Columbia, of law and of commerce at New York University, of medicine and of dentistry at Pennsylvania, of architecture at Illinois, of agriculture at Minnesota. The Eastern universities continued to gain in their representation from all parts of the country, the Western institutions, except Michigan, being much more local. Columbia had the most widely distributed representation for the United States, Pennsylvania the largest foreign representation (245), Cornell the largest representation from our insular possessions (32). The number of foreign students in the United States, especially those from the Orient, continued to increase, particularly in the professional schools; and the Chinese government announced its intention to spend the remitted Boxer indemnity in sending one hundred students here annually. There were only 252 American students in Germany in 1908, the number of such students in Europe continuing to decrease, except for the American Rhodes scholars. The first group of these returned in 1908 after having acquitted themselves more than creditably during their three years at Oxford. The annual interchange of professors between American and European institutions was extended from Germany and France to Scandinavia.

THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING extended its provision of professional pensions to sixty universities and colleges, including State institutions for the first time, the funds of the Foundation being increased from \$10,000,000 to \$15,000,000 for that purpose. The Foundation published in March elaborate tables of information concerning the one hundred and three universities and colleges which spent more than \$40,000 annually for instruction, and of fifty-four other institutions which were believed to obtain worthy results. Many of the institutions not in these lists the Foundation believed to be unnecessary. Six universities spent annually more than half a million dollars for instruction: Cornell, \$510,000; Yale, \$524,000; Michigan, \$536,000; Chicago, \$699,000; Harvard, \$841,000; and Columbia, \$1,145,000. But the average salary of a full professor, even in the one hundred best institutions, was but \$2,500. Only five institutions paid an average salary of more than \$3,500: Chicago, \$3,600; Leland Stanford, \$4,000; Columbia, \$4,298; Harvard, \$4,403; and the College of the City of New York, \$4,788. In general the endowed universities paid higher salaries than the State institutions; the denominational colleges paid least. In general the Foundation criticised the tendencies to multiply institutions, to expand curricula, and to overvalue material equipment.

THE GENERAL EDUCATION BOARD, which was founded in 1902 and endowed with a capital of \$43,000,000 provided by John D. Rockefeller, appropriated by 1908 about \$2,500,000 to colleges, chiefly denominational, under conditions that secured to them a total of four times that amount. Some \$700,000 was also appropriated for further-

ing high, elementary, rural, and colored schools in the Southern States.

THE ASSOCIATION OF AMERICAN UNIVERSITIES and the NATIONAL ASSOCIATION OF STATE UNIVERSITIES agreed during the year that the ideal university should maintain a worthy graduate school and require two years of college work for admission to its professional school. Graduate work developed steadily, 386 degrees of doctor of philosophy being granted in 1908, as compared with 236 in 1898, the average annual number of doctorates granted during that period being Johns Hopkins, 30; Yale, 31; Columbia, 32; Harvard, 33; and Chicago, 35. Illinois is now in annual receipt of \$50,000 for graduate work, the first specific State grant for that purpose. Columbia inaugurated a movement toward the concentration of highly specialized graduate courses.

There was much activity in university professional schools during 1908. In agriculture Chicago established a three years' graduate course, several universities successfully conducted short winter courses for farmers, and Cornell sent throughout the state a special train bearing agricultural lecturers and exhibits. Harvard successfully inaugurated its graduate school for business training, and Yale announced similar instruction in banking, insurance, corporations, and commercial law. There are now four university schools of ceramics and more of forestry. The facilities for the study of law are increasing even more rapidly than the demand for them. In medicine more universities and more State boards approved a combined academic and medical course of six years, and Harvard made the notable innovation of announcing an extended series of free public lectures on medical subjects. The Massachusetts Institute of Technology developed the first graduate work in its field. In theology the tendency toward university affiliation was emphasized by the removal of Andover Theological Seminary to Harvard and of Union Theological Seminary to new buildings adjoining Columbia. Theology still has, however, only one-half as many students as law and one-fourth as many as medicine, although its investment in buildings and endowments is twice that of medicine and ten times that of law. In fine arts an affiliation became effective between Columbia and the National Academy of Design, and several universities enlarged their offerings in music.

Changes in administration were marked during 1908. The resignations of Presidents Eliot of Harvard, Angell of Michigan, Northrop of Minnesota, and of Chancellor Andrews of Nebraska, occasioned considerable comment concerning the great responsibilities of the university president—public, financial, administrative, educational, and personal—and there were some pleas for their reduction. The apparently arbitrary action of some boards of trustees gave rise to suggestions for the reduction of their powers. Cornell followed the plan of Harvard. Yale, and Columbia in relieving its president by creating the office of secretary of the university; the trustees of Leland Stanford ruled that no professor could be dismissed without their consent; the faculty of the Massachusetts Institute of Technology recommended some advisory relation between faculties and trustees; and representatives of ten New England colleges met to consider general problems of administration. In



ALBERT ROSS HILL
University of Missouri



RICHARD C. MACLAURIN
Massachusetts Institute of Technology



HARRY A. GARFIELD
Williams College



DAVID F. HOUSTON
Washington University

FOUR PRESIDENTS OF IMPORTANT EDUCATIONAL INSTITUTIONS ELECTED IN 1908

the election of new presidents a number of professors were chosen—Professor MacLaurin of Columbia, by Massachusetts Institute of Technology, Professor Hill of Cornell by Missouri, Professor Garfield of Princeton by Williams, Wesleyan, De Pauw, and the Woman's College of Baltimore followed the older custom of choosing clergymen.

Among the colleges Dickinson held its 125th anniversary, honoring its founders, John Dickinson and Benjamin Rush, and its graduates, President James Buchanan, and Chief Justice Roger Taney. Oberlin celebrated its 75th anniversary and its being the first American institution to grant degrees to women. Haverford also celebrated its 75th anniversary with an exhibit of literary work done by alumni. The emphasis of the Carnegie Foundation has now generally established an entrance requirement of at least fourteen units each representing one period of High School work daily throughout one year. In general, also, the colleges are moving toward a curriculum of two years of prescribed work followed by two years of elective. University colleges generally hold that in the latter, utilitarian and cultural ends are not incompatible, but most of the independent colleges continued to hold rather to their ideal of broad, non-technical instruction for mental and moral training and for citizenship. Princeton's preceptorial system has now influenced almost every other institution to establish closer relations between professor and student, and to give greater attention to method in instructing undergraduates. There continued also, perhaps from the same source, a tendency to restrict such student distractions as athletics, clubs, and theatricals, either by direct regulation or by the substitution of residence quadrangles, commons and student unions. A dozen deaths and some three hundred serious injuries were attributed to college football in 1908, and the objections that college athletics as at present conducted conduce neither to health nor scholarship were renewed, but there was no extension of the action of two years ago when California and Leland Stanford adopted the Rugby game, and Columbia abolished intercollegiate football. Public attention was claimed by half a dozen conspicuous instances of student disorder during 1908, but faculty discipline was maintained and several student bodies formally announce their disapproval of such disorder as unsatisfactory in itself, and as bringing discredit upon their institutions and upon student life in general. The same attitude has practically abolished anything like systematic hazing in institutions of the better sort.

At the death of ex-President Grover Cleveland he was instanced by Princeton as an ideal type of a wise and devoted university trustee. The death of ex-President Gilman of Johns Hopkins recalled his services in developing university research, and that of President Hall of Union Seminary his liberalization of theological education. The passing of numerous professors also recalled their distinguished services to scholarship—Professors Norton of Harvard in letters, Bourne of Yale in history, Young of Princeton in astronomy, Brooks of Johns Hopkins in zoölogy, Knapp of Chicago in Spanish, and Nelson of Williams in politics.

The most conspicuous books on higher education during 1908 were: *University Administra-*

tion, by President Charles W. Eliot; *Which College for the Boy?* by John Corbin; *The American College*, by Abraham Flexner; and the life of Alice Freeman Palmer, by George Herbert Palmer.

See also articles on the different universities and colleges.

UPPER AIR. See METEOROLOGY.

UPPER SENEGAL-NIGER. A French colony in West Africa, formed in 1904 out of the Territories of Senegambia and the Niger, minus the former Senegal protectorate, which was re-joined to Senegal. In 1907 certain districts were taken from the colony of Dahomey and added to this colony. The colony comprises the vast hinterland of West Africa, and has no seacoast. It includes two-thirds of the course of the Niger, the valley of the Upper Senegal, and the Sahara northward to the Southern Territories of Algeria. It is the most extensive French colony in West Africa, its area being estimated at over 370,000 square miles, and the population at 8,000,000. The capital is Bamako on the Niger. The entire colony is administered by a Lieutenant-Governor who is under the Governor-General of French West Africa (q. v.). Civil administration prevails throughout, except in the Military Territory of the Niger, which is under a colonel subordinate to the Lieutenant-Governor, and is divided into the districts of Timbuktu and Zinder, each under a lieutenant-colonel. The budget of the Military Territory is distinct from that of the colony. The exports and imports of the colony are included in those of Senegal (q. v.), through whose ports they pass. The Senegal-Niger Railway, 343 miles long, connects Kayes, in Senegal, with Koulikoro, in Upper Senegal-Niger. Small steamboats sail up the Niger from Koulikoro to Timbuktu. Roads and telegraphs connect all important centres.

URUGUAY, officially styled **REPUBLICA ORIENTAL DEL URUGUAY**. The smallest republic of South America, covering an area of about 72,000 square miles. In 1908 the population numbered 1,039,078, against 915,647 (198,154 foreigners) in 1900. Montevideo, the capital, had 312,946 inhabitants on June 30th, 1908. In 1906 there were 6,170 marriages, 31,417 births (8,955, or 27.5 per cent., illegitimate), and 15,083 deaths. In the same year there were 9,177 immigrants, and 6,152 emigrants. Among the immigrants were 3,388 Spaniards, 3,178 Italians, and the remainder Brazilians, French, Germans, English, etc.

EDUCATION. About 45 per cent. of the population over six years of age were illiterate in 1900. Primary education is obligatory. In 1906 there were 619 public primary schools, with 1,218 teachers and 57,638 pupils, and 289 private primary schools, with 805 teachers and 17,242 pupils. There are 150 night schools for adults. Lyceums, or schools of secondary education, have been started in each of the 17 departmental capitals; each school has a director and three teachers. At Montevideo the secondary schools have about 2,600 pupils. A school of arts and trades is supported by the State. Other schools at Montevideo include normal schools, a military college, a national agricultural college, and the national university.

PRODUCTION. Only 21.2 per cent. of the total area is under cultivation. The area and yield

of the principal crops in 1907-8 are shown in the following:

	Hectares	Tons.
Wheat	247,606	202,208
Linseed	25,680	18,372
Oats	3,509	3,467
Barley	2,007	1,889
Canary seed	298	223
Maize *.....	212,154	136,136

* 1906-7.

In 1905-6 there were 1,453 vineyards, covering 4,259 hectares, containing 14,050,214 fruit-bearing vines, and yielding 21,472,773 kilos of grapes. The wine production amounted to 10,494,247 liters. The principal source of wealth is live stock, of which the Rural Society of Uruguay gave in 1908 the following estimates: Cattle, 8,000,000; sheep, 20,000,000; horses, 561,000; mules, 23,000; hogs, 94,000; goats, 21,000. The number of cattle slaughtered in the year ending Oct. 1st, 1908, was 954,120, against 1,193,500 in 1906-7, and 1,182,470 in 1905-6. The export of ox hides in 1907-8 numbered 1,717,536; horse hides, 21,724; sheepskins, 13,715. None of these items vary markedly from earlier years but the export of tallow showed a marked increase. The export of wool in 1907-8 amounted to 95,401 bales, against 82,405 and 75,792 bales, respectively, for the two preceding years. The mineral resources, supposed to be great, have thus far been neglected. There are granite quarries in various parts of the country. The Cunapiro mines, in the department of Rivera, owned by a French syndicate, yielded 117,917 grams of gold in 1907.

FOREIGN COMMERCE. In 1907 the total imports amounted to 34,425,205 gold pesos (1 gold peso equals \$1.034) and the total exports to 35,150,937, against 34,454,915 and 33,402,024 gold pesos respectively for 1906. Of the total imports of 1907, 31,930,324 pesos passed through the port of Montevideo, and of the total exports, 25,388,643. The principal imports in 1906 were, in gold pesos: Foodstuffs, 6,691,377; textiles and apparel, 8,324,493; raw and manufactured materials, 11,095,305; drinks, 1,808,642. The principal exports in 1906 were, in gold pesos: Live stock, 1,099,001; animal products, 30,495,990; agricultural products, 481,924; mineral products, 794,563. To the total imports in 1906 Great Britain contributed 28.3 per cent.; France, 11.6; Germany, 15.8; the United States, over 9 per cent. Of the total exports Great Britain took 5.4 per cent.; France, 21.8; Germany, 12.8; the United States, nearly 6 per cent. According to United States returns for the fiscal year 1907-08, imports from Uruguay amounted to \$1,364,796, and exports to Uruguay, \$3,868,661.

COMMUNICATIONS. In 1906 the railway system had a length of 1,217 miles, all in British hands. There are about 2,240 miles of national, and 3,100 miles of departmental roads. There are about 5,000 miles of telegraph line. River transportation is developing. A regular steamer service is now maintained on the Rio Negro, a tributary of the Uruguay, from its mouth to its confluence with the Rio Tacuarembó, some 144 miles. The latter river was made navigable in 1907 for about 72 miles farther into the interior. These routes will open up an almost virgin territory,

comprising about one-fifth of the total area of the republic and reported to be especially suitable for the cultivation of cotton, tobacco, and other sub-tropical and tropical products. In 1906 the ports of the republic were entered by 14,623 vessels, of 11,004,328 tons, and cleared by 14,388 vessels of 10,854,035 tons. Over two-thirds of the tonnage was in the foreign trade. Montevideo is visited by 20 lines of steamers, 3 lines of steamers plying regularly between this port and Buenos Ayres. The Uruguayan merchant marine (of 100 tons and over) consisted in 1907 of 33 steamers, of 23,508 net tons, and 28 sailing vessels of 19,301 net tons.

BANKS AND MONEY. The Bank of the Republic, the only note-issuing bank, has a nominal capital of 12,000,000 pesos and a paid-up capital of 6,000,000 pesos. Its officials are appointed by the government. On Dec. 31, 1907, its note issue amounted to 13,084,056 pesos. There are 4 British banks, as well as German, Argentine, French, Italian, and Uruguayan banks. The monetary unit is the gold peso (equals \$1.034), but no gold coins have been issued. The silver coins are the peso and its subdivisions. There are also some bronze coins.

FINANCE. The total revenue for the fiscal year 1906-07 was 26,159,411 pesos. The customs receipts for 1907-08 were 13,365,525 pesos, against 12,965,729 in 1906-07. The budget for 1907-08 estimated the total revenue at 20,302,000 pesos and the expenditure at 20,257,462. About one-half the revenue is derived from customs, and about one-half the expenditure is for "national obligations," in which are included the service of the national debt and railway guarantees. The national debt on Jan. 1, 1908, was 128,138,917 pesos.

ARMY AND NAVY. The military forces consist of the active or regular army and the National Guard. The active army is recruited by voluntary enlistments, for terms varying in the different branches from 2 to 5 years. The peace strength of the active army was 280 officers and 5,283 men in 1907.

Service in the National Guard is universal and compulsory, and is divided into 3 bans; the first ban consists of all men fit for military duty between the ages of 17 and 30, and numbers about 15,000; the second ban is a provincial organization consisting of all between 30 and 45 years of age; the third is the territorial army and includes all men between 45 and 60 years of age. The total strength of the National Guard is about 35,000. The field army has a strength of about 30,000 men, not including the 3,834 men of the police force. The navy at the beginning of 1908 consisted of 3 gunboats, aggregating 900 tons, with about 200 officers and men.

GOVERNMENT. The President in 1908 was Dr. Claudio Williman, whose term of office is March 1, 1907—Feb. 28, 1911. In the intervals between sessions of Congress there is a permanent committee of two Senators and five Deputies, who have powers of legislation and administrative supervision. Governors of departments are appointed by the President; their administrative councils are elected.

HISTORY. In November, 1907, a boundary demarcation treaty was negotiated with Brazil. In the same month Congress sanctioned a bill establishing absolute divorce under exceptionally broad conditions. The general elections on November 25th aroused little interest, and the ad-

ministration party secured a large majority of the seats. In December, 1908, a Supreme Court was established and the judicial system was re-organized. On Jan. 26, 1908, the inaugural session of the International Congress of American Students was held at Montevideo. There were over 100 delegates from Argentina, Brazil, Bolivia, Chile, Guatemala, Paraguay, Peru and Uruguay. In his message to Congress in February, 1908, President Williman congratulated the country on the peace and order which characterized the last general and presidential elections. A strike on the Central Uruguay Railroad broke out in February, but it was defeated without much difficulty. A naturalization convention with the United States was signed at Montevideo and sent to the United States for ratification. The annual rural exposition of Montevideo was held in September. These expositions have attained importance on account of the number and quality of live stock exhibited. In October was taken the population census, the results of which are given above.

UTAH. One of the Western States of the American Union. Its area is 84,990 square miles. The population in 1908 was, according to a Federal estimate, 329,525.

MINERAL RESOURCES. The production of copper in Utah in 1907 was 66,418,370 pounds, as compared with 50,329,119 pounds in 1906. The production of coal in 1907 was 1,947,607 short tons, with a spot value of \$2,959,769. In spite of the financial disturbances which curtailed the production in the last three months of the year, the record surpasses that made in 1906 when the production amounted to 1,772,551 short tons. The coal mines of Utah gave employment in 1907 to 2,203 men. In 1907 there was only one strike in the coal mines of the State, and this lasted but four days. There were but six fatal accidents in the coal mines of Utah in 1907. The original estimated total contents of these fields, according to the United States Geological Survey, was 196,458,000,000 short tons. The production in the State since mining began about 1870 is 18,837,182 short tons. The value of the gold product for 1907 was \$5,121,600, as compared with \$5,218,286 in 1906, and \$5,140,920 in 1905. The silver mined was valued at \$7,528,500, as compared with \$7,738,925 in 1906, and \$6,666,028 in 1905. The production of lead amounted to 61,699 short tons, as compared with 56,260 short tons in 1906. The value of the clay products of the State amounted in 1907 to \$633,387, as compared with a value of the product in 1906 of \$634,444. Stone was produced to the value of \$338,382 in 1907, as compared with a value of the same product in 1906 of \$292,745. Other mineral products of the State are zinc, salt, coal products, lime, quicksilver and unclassified, cement, coke, gypsum, iron ores, manganese ores, sulphur and precious stones.

The production of silver and lead in Utah suffered a serious setback in 1908, on account of the general financial conditions and the closing of three smelters by decree of the Federal Courts in smoke damage suits. The gold production was also reduced, as much of the gold in Utah is obtained from copper and lead ores. Many of the mines were closed entirely and others operated under a restricted output. The Director of the Mint estimated the gold production of the State in 1908 at \$3,930,290, against \$5,121,600 in 1907, and the silver production at 7,718,872 fine

ounces, against 11,406,900 fine ounces in 1907. The report of the State coal mine inspector shows a decrease of somewhat more than 6 per cent. in the production of coal, while the production of coke decreased about 60 per cent. The decrease is attributed largely to the financial depression.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 323,000 bushels, valued at \$233,000 from 11,000 acres; winter wheat, 1,150,000 bushels, valued at \$978,000 from 5,000 acres; spring wheat, 4,675,000 bushels, valued at \$3,964,000 from 170,000 acres; oats, 2,624,000 bushels, valued at \$1,280,000 from 53,000 acres; barley, 540,000 bushels, valued at \$292,000 from 12,000 acres; rye, 46,000 bushels, valued at \$30,000 from 3,000 acres; potatoes, 1,920,000 bushels, valued at \$1,056,000 from 12,000 acres; hay, 938,000 tons, valued at \$6,941,000 from 375,000 acres. Utah ranks among the leading States in the production of sugar beets. The production of beet sugar in 1908-9 was estimated at 555,555 long tons. Irrigation projects carried on by the United States Reclamation Service have materially increased the agricultural development of the State in recent years. (See IRRIGATION.) Sheep are the only important farm animals in the State. They were estimated at 3,115,000. The wool clipped in 1908 was estimated at 14,700,000 pounds, valued at \$2,231,460.

MANUFACTURES. The recent progress in manufacturing is shown by the increase in the value of the products of factories from \$17,981,600 in 1900 to \$38,926,400 in 1905. The leading industries, the value of their 1905 products and (in parentheses) the percentage increase in value over 1900 were: Flouring and grist milling, \$2,425,790 (46.2); railway repair shops, \$1,886,600 (44); printing and publishing, \$1,466,500 (90.3); confectionery, \$1,004,600 (149); dairy products, \$963,800 (150); and canning and preserving fruits and vegetables, \$801,958 (166). Of the value of products in 1905 Salt Lake City was credited with \$7,543,980 and Ogden with \$2,997,000.

EDUCATION. The school districts of five counties of the State have been consolidated into County School Districts of the first class since the enactment of the law in 1905. The Legislature of 1907 passed a law providing for a levy of one half mill for the establishment and maintenance of public school libraries in the rural districts of the State. A number of libraries have been established in accordance with this provision. The same Legislature enacted a law providing for a State Committee to formulate a State course of study for the public schools outside of cities of the first and second class, to consist of the State Superintendent of Public Instruction, the Principal of the State Normal School and the Principal of the State Normal Training School, and two County Superintendents of Schools to be appointed by the State Board of Education. The State course of study was published in 1908, in compliance with this law. The State Legislature also enacted a law providing for public school teachers' retirement commission. Such an organization was effected in Salt Lake City in 1908. The report of the Superintendent of Public Instruction for the school year 1908 shows the num-

ber of pupils of school age in the State as 89,660, and the number enrolled in the public schools 81,535. The average number of pupils in daily attendance was 66,484. The number of schools in the State was 662. The number of male teachers 544, and female teachers 1,562. The average salary of male teachers per month was \$77.32, and of female \$53.60. Twenty-five new school buildings were erected during the year. The amount paid on the construction of these was \$299,591. The total expenditure for education during the year was \$2,329,965.

POLITICS AND GOVERNMENT. There was no meeting of the State Legislature in 1908. The Federal government on Feb. 1st filed a bill in the District Court at Salt Lake City, charging the Harriman railroad lines with restraint of trade, and asking for an injunction. (See **RAILWAYS**). On March 2nd, Judge Marshall in the Federal Court at Salt Lake City handed down a decision that the Union Pacific Coal Company must answer the charge of violating the Sherman anti-trust law. Judge Marshall sustained the company's demurrer to one count of the indictment and overruled it on a second. The count overruled charged general conspiracy with the Union Pacific Railway, the Oregon Short Line, and a number of individuals to deprive a coal dealer of the right to sell coal at any price he chose. The indictment was the result of a hearing of the Interstate Commerce Commission in 1906.

The Union Pacific Railroad, the Union Pacific Coal Company, the Oregon Short Line Railroad, Everett Buckingham, former General Superintendent of the Oregon Short Line, and J. M. Moore, formerly General Western sales agent of the Union Pacific Coal Company, were found guilty of conspiracy in restraint of trade, on Dec. 3rd.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the nomination of delegates to the National Convention, met on May 7th. Resolutions were adopted declaring the first choice of the delegates for President to be Theodore Roosevelt, and the second W. H. Taft. The Democratic State Convention on June 10th instructed the delegates chosen to vote for W. J. Bryan for President. In the election of Nov. 3rd, the Republicans carried the State by a majority of 13,445 for Taft, and a plurality of 9,538 for the Republican candidate for Governor, William Spry. The most surprising feature of the election was the defeat of the American ticket in Salt Lake County. Salt Lake City, which usually gives the American ticket a substantial plurality, went Republican by 1,100. The detailed vote on the national ticket was as follows: Taft, 61,015; Bryan, 52,601; Debs, 4,895; Hisgen, 87.

STATE OFFICERS: Governor, William Spry; Secretary of State, C. S. Tingey; Treasurer, David Mattson; Auditor, Jesse D. Jewkes; Adjutant-General, E. A. Wedgwood; Attorney-General, A. R. Barnes; Superintendent of Education, A. C. Nelson; Commissioner of Insurance, Secretary of State, ex-officio—all Republicans.

JUDICIARY—Supreme Court: Chief Justice, Daniel N. Straup, Republican; Justices, W. M. McCarty and J. E. Frick; Clerk, H. W. Griffith, Republican.

The State Legislature of 1909 is composed of 18 Republicans in the Senate, 43 Republicans and 2 Democrats in the House. The State repre-

sentation in Congress will be found in the article **UNITED STATES** under the section *Congress*.

VACCINATION. See **SMALLPOX**.

VAGRANCY. Owing to the very unusual amount of unemployment (q. v.) in 1908, there was an abnormal amount of vagrancy and homelessness. To the thousands of habitual tramps in the United States were added many thousands of men who, unable to support themselves because of lack of work, were reduced to the necessity of tramping, begging, or existing on the meagre doles obtainable in city bread lines. The number of tramps in the United States in 1908 was set down at 300,000, though other estimates were as large as half a million. They tend to congregate in the cities, especially during the winter months, and hence greatly increase the problems and difficulties of organized charities and other relief agencies. An especial difficulty is to distinguish the worthy from the unworthy. Moreover, the habitual vagrants, including as they do many persons of criminal tendencies, greatly increase the numbers of crimes in cities in winter. Some States have dealt with the problem in an effective manner. In New England tramps are sentenced to the workhouse; in New Hampshire there is a reward of \$10 for every vagrant arrested, the result being that the State is practically free of them. The National Vagrancy Committee formed in 1907 has developed the proposition of making the vagrant pay his way as he goes. Rochester, N. Y., following the committee's suggestions, has almost freed itself of tramps and their petty robberies. Late in December, Governor Hughes of New York held a conference with several men prominent in organized charity with reference to more effective means of handling the problem of vagrancy in that State. It was proposed that farm colonies be established for vagrants. It was stated that magistrates in city courts feel under the necessity of dealing leniently with vagrants, because of the difficulty of distinguishing the purposeful from the unfortunate. It was stated also that workhouses in many cities were already full. Farm colonies, it was thought, would make possible reformative measures for habitual drunkards and vagrants, and all those who steal rides on railroads, and at the same time permit a distinction of the industrious and honest from the congenitally lazy and untrustworthy. The plan proposed included parole for those worthy, and the punishment of escape by sentence to state prison.

The advisability of maintaining bread lines and soup kitchens in the large cities received considerable discussion in 1908, especially near the close of the year. The maintenance of such bread lines as those at the Bowery Mission and elsewhere in New York City were condemned as fostering the evil they are designed to cure. It was argued that the bread line is an incentive to the tramp to continue in his vagrancy; that it is a temptation to runaway boys and destitute men to fall into habitual pauperism; that it in no way puts men in position to support themselves, and that it is almost the sole survival of that indiscriminate giving to worthy and unworthy alike, which was previously almost universal. The contention that the bread line does not deprive its beneficiaries of the respect of their fellows, nor affront their self-respect, was also disputed. Mr. W. F. Persons, Super-

intendent of the Charity Organization Society, declared that such relief was certainly not conducive to self-respect, or to the respect of others. On the other hand, the relief extended by organized charity was criticised also. It was shown that in four winters charity officials had distributed among men in New York City bread lines 60,000 cards issued by the Joint Application Bureau, a bureau designed to render aid to homeless and destitute men by finding them a chance to earn their bread honestly. Of these cards only 2 per cent. were used, and less than one-half of these beneficiaries returned for aid a second time. To show that the system used by organized charity does not appeal to the majority of destitute men, it was pointed out that in December the call of the Street Cleaning Department for laborers reduced by more than one-half the number in the bread lines and at the Municipal Lodging House. One point made much of was that, while the bread line and the aid extended by such organizations as the Bowery Mission and the Salvation Army, is rendered anonymously so far as the recipients are concerned, the agencies of organized charity and the Municipal Lodging House require registration and some investigation into the character and history of the applicant for aid. It would seem that the majority of destitute men, even those who are worthy, are suspicious of systematized relief work, and feel that they lose caste by formal application for assistance.

In Europe also the amount of vagrancy was increased because of unemployment. In England, where the cost of vagrants is put at £3,000,000 annually, colonization is being resorted to more and more. The effort is also being made to restrict the recruiting of vagrants from the ranks of childhood. An index of the unusual amount of vagrancy may be found in the fact that the number of persons receiving poor law relief in the last three months of 1908 was greater in proportion to population than at any other time in thirty-five years. In London alone the number reached almost 130,000, or 27 per 1,000 of the population.

In Germany similar conditions existed. It was asserted in the Reichstag that the number of unemployed, as shown by sick funds, was at least 400,000. As in the United States and England the cities, especially Berlin, had fully double their customary number of unemployed, destitute and homeless men.

In Switzerland the vagrant is severely handled. Those out of work through temporary accident or misfortune are carefully distinguished from the lazy, the incapable, or the criminal. Every workingman has papers which make it possible for police authorities to tell at once his proper classification. The relief in kind stations supply temporary aid to worthy unemployed, but are not open to unemployed whose papers are not clear in every respect. Men who have been out of work more than three months cannot secure aid at these stations. There are also "home inns," where workingmen and their families may stay for a short time; and in industrial centres "warm rooms" are maintained at either public or private expense, as waiting rooms for unemployed looking for work. Begging and vagrancy are crimes; in some cantons fees are given to the police for the arrest of beggars or vagrants. Such are thrown into penal workhouses to be released

only at official discretion. Such institutions are governed by military discipline, and are more than self-supporting. See UNEMPLOYMENT.

VARIABLE STARS. See ASTRONOMY.

VASSAR COLLEGE. An institution for the higher education of women at Poughkeepsie, N. Y., founded in 1861. The attendance in 1908-9 was 1,014. The total number is limited to about 1,000. The value of the endowment and buildings in 1908 was \$3,423,000, and the annual income approximately \$590,000. There are 98 offices of instruction and a library of 63,000 volumes. A Maid's Club House and the Sanders Laboratory of Chemistry, erected at a cost of \$100,000, were completed in 1908. Among the new professors added in 1908 were I. Woodbridge Riley, Ph. D. (Philosophy), and Charles W. Chamberlain, Ph. D. (Physics).

VENEZUELA. A republic of South America. Area, about 363,800 square miles; population (1906), estimated at 2,619,218. The principal cities are Caracas, the capital, with about 90,000 inhabitants; Valencia, 40,000; Maracaibo, 35,000; Baraquismeto, 32,000.

EDUCATION. Elementary education is free and compulsory. The elementary schools number 1,330. At Caracas are two normal schools. For secondary instruction there are 33 national colleges, besides private colleges, which receive a subvention from the government. For professional and higher education there are the National University at Caracas, the University of Los Andes at Merida, schools of agriculture, engineering, fine arts, a military academy, a nautical school, etc.

PRODUCTION. The mineral resources are great but undeveloped. Gold (556,479 grams in 1906), silver, copper, iron, coal (14,064 tons in 1906), asphalt and salt mines are worked. Salt mining is a government monopoly, leased to a company at an annual rent of 3,500,000 bolivars (1 bolivar equals 19.3 cents). Asphalt is exported. Petroleum of good quality is found in the State of Tachira. Pearl-fishing off the north coast, round the island of Margarita and neighboring isles, yields \$300,000 worth annually. Coffee, cacao, sugar, cattle and rubber are the principal agricultural products exported. Rice has been introduced with considerable success, but it has been found difficult to dispose of it even in the home market, due to the lack of means of transportation. Wheat is grown to a considerable amount in the western part of the country, yet a flour mill in La Guayra finds it cheaper to import wheat from the United States than to buy the home-grown product. Cattle and other live stock are numerous. The general economic backwardness is owing to the want of transportation facilities, which is caused by the topography of the country. The most healthful and habitable part of the country, in which energetic and prolonged work may be carried on, is hedged in from the sea by high mountains. Along the whole northern coast there is hardly a navigable river for any practical distance, and railroad construction is difficult and costly. Owing to their isolation from the world's markets, the inhabitants of the interior produce only what is needed for their own wants. In 1908 the match monopoly was abolished.

FOREIGN COMMERCE. In the fiscal year 1906-07 the total imports amounted to \$10,335,817 and the total exports, \$16,203,972. The chief articles

of import are cereals, flour and kerosene oil from the United States; textiles, machinery, hardware and coal, principally from Great Britain; cement and rice, principally from Germany; wines and silks from France. The principal exports in 1906-07 were: Coffee, 98,992,832 pounds, valued at \$7,593,275, about one-half of it going to the United States; cacao, 26,303,061 pounds, valued at \$2,864,773, two-thirds of it going to France; balata rubber, 3,441,476 pounds, valued at \$1,190,494; cattle, over \$1,000,000, mainly to Cuba. The imports and exports of Puerto Cabello in 1907 amounted to \$1,380,860 and \$2,470,773 respectively. Rubber shipments from Ciudad Bolívar, in 1907, amounted to 258,404 kilos of Para and Ceara, valued at \$348,440, and \$1,455,973 kilos of balata, valued at \$1,092,000. The prospects of the rubber industry are not very good, owing to the system of felling trees in order to extract the gum. The more accessible forests are already becoming exhausted. Regulations have been issued by the government forbidding or restricting this practice. The imports to and exports from the principal countries in 1906-07 were valued as follows: United States, \$2,826,471 and \$5,060,095 respectively; Great Britain, \$3,927,410 and \$1,001,376; Germany, \$2,049,230 and \$584,266; Netherlands, \$954,512 and \$1,925,453. The exports to France and Cuba were, respectively, \$4,073,395 and \$1,046,852. According to United States returns for the fiscal year 1907-08, the imports from Venezuela amounted to \$6,725,184 and the exports to Venezuela \$2,555,863.

COMMUNICATIONS. The roads are mostly cart and mule tracks. The railways have a length of about 540 miles. The German railway from Valencia to Caracas is 288 miles long, with a branch line of 8 miles. The length of telegraphs is 4,550 miles. The Orinoco river system is navigable for about 11,160 miles; its traffic is practically a monopoly of the Orinoco Steamship Company. The Venezuelan merchant marine (of 100 tons and over) consisted in 1907 of 10 steamers, of 2,263 tons, and 9 sailing vessels, of 1,282 tons.

GOVERNMENT. The President of the Republic—in 1908, General Cipriano Castro (see *History*)—is elected for six years by electors chosen by Congress from among its own members, one for each State and the Federal District. He cannot serve two successive terms. The Congress consists of a Senate of 26 members, two for each State, and a Chamber of Deputies elected by States, one for every 40,000 inhabitants or major fraction thereof. The Federal Districts and the more populous Territories also elect Deputies. Senators and Deputies are elected for six years. The presidents of States are appointed by Congress; their legislatures are elected by direct and secret popular vote. The country is divided into 13 States, 5 Territories and a Federal District. The governors of Territories are appointed by the President of the Republic. The Federal District is divided into two sections: the East, with Asunción for its capital, and the West, with Caracas for its capital. Each section has its own governor.

FINANCE, ETC. The revenue and expenditure in 1906 amounted to 49,293,067 and 51,874,694 bolívars respectively. The customs duties yielded 20,544,083 bolívars, the transit duties 5,791,895, and the salt monopoly, 4,038,987. Of the expenditure, 10,271,109 bolívars were for the army and navy, 11,393,222 for the service of the na-

tional debt, and 2,294,443 for education. The debt stood on July 31, 1907, at 230,904,012 bolívars. The army consists of about 8,000 infantry and 1,600 artillery. The navy at the beginning of 1908 consisted of one gunboat, 509 tons, and two destroyers, of 771 tons.

HISTORY.

INTERNATIONAL DIFFICULTIES. During the year 1908 the international relations of Venezuela, under the guidance of President Castro's dictatorial hand, continued to move in stormy waters. To the old quarrels with Colombia, France, Great Britain and the United States, new ones were added. In January the contract of the government with the English corporation having the Venezuelan salt monopoly was revoked. In March the Colombian agent sent to settle the disputes with Venezuela regarding navigation and boundaries, reported to his government the failure of his mission. In the same month, the decision of the lower court against the New York and Bermudez Asphalt Company was affirmed by the Superior Court. In addition, a fine of \$5,000,000 was imposed on this company for promoting the Matos rebellion. Ill-feeling was heightened by the opening of the mail bags intended for the United States cruiser *Tacoma*. In April, Castro made known his refusal to consider the American demands. In the same month the port of La Guayra was closed, owing to the prevalence of a disease which was believed to be the bubonic plague. The sanitary condition of interior cities was also reported to be very bad. Venezuelan commerce was almost destroyed by the quarantine against Venezuelan ports established by foreign countries. The cattle export to Cuba was stopped by a quarantine decree issued by Governor Magoon. Other Central and South American countries took similar action. A considerable falling off in the revenues of the government was the result. In June the United States withdrew its legation at Caracas and placed its diplomatic affairs in the hands of the Brazilian legation. On July 1, the Court of Cassation, the court of last appeal, sustained the judgment of the lower courts against the Asphalt Company. Two weeks later the Venezuelan government withdrew its chargé d'affaires from Washington, so that diplomatic relations between the United States and Venezuela were entirely severed. Consular and trade relations, however, were not interrupted. In August, Castro refused to allow the Brazilian Minister to take charge of French affairs. In the same month the Venezuelan Civil Court of First Instance fined the French Cable Company \$5,000,000 for having given aid to the Matos rebellion.

TROUBLE WITH THE NETHERLANDS. The difficulties between the Venezuelan and Dutch governments which led to the patrolling of the Venezuelan coast by three Dutch warships toward the close of the year, are described in the article **NETHERLANDS**, paragraphs on *History*, but may here be briefly mentioned. They began in the spring when the Dutch Minister to Venezuela, M. de Reus, reported that the plague had broken out at La Guayra, whereupon the Dutch colony of Curaçao established a quarantine. President Castro denying that the plague was a menace retaliated with a decree prohibiting the transshipment at Curaçao of goods destined for Venezuela (May 14). The Venezuelan government also protested against Dutch filibustering and smuggling. The transshipment decree seriously injured the trade of Curaçao,

which further complained of the seizure of Dutch vessels on the high seas and the opening of their mails. The Dutch Minister protested vigorously, and an indiscreet letter of his reflecting on the course of President Castro appeared in the press. Castro sent him his passports on July 22, declaring that he was not a friendly medium of communication. On July 25 a Curaçao mob attacked the house of the Venezuelan Consul at Willemstad, forcing him to take refuge at the German consulate. Diplomatic relations were now severed. The Dutch, on ascertaining that the United States government would not oppose the use of force without occupation of territory, planned a naval demonstration and demanded of Venezuela the recall of the transshipment decree of May 14, at the same time expressing regret for the action of the mob at Willemstad. President Castro refused the demand on Sept. 12, and on Oct. 20 ordered the defence of La Guayra on account of the Dutch threat of naval demonstration on Nov. 1. Three Dutch war vessels began to cruise in Venezuelan waters on Dec. 2. On Dec. 12, the Dutch cruiser *Gelderland* seized a Venezuelan coast guard vessel, sent the crew ashore, and took the vessel to Curaçao. The act was explained as a reprisal for the unfriendly acts of Venezuela and it was denied at The Hague that it meant war. On Dec. 11, the Venezuelan Foreign Minister in a note to the diplomatic body protested energetically against this and other instances of aggression on the part of the Dutch. On Dec. 14, Acting President Gomez issued a decree calling the acts of the Dutch a "true invasion of Venezuelan territory," and declaring the country in a State of defense. At this juncture occurred the popular demonstration at Caracas against the Castro régime, which was followed by changes in the cabinet and the announcement by President Gomez of a new policy (see following paragraph). On Dec. 22 it was announced that the transshipment decree had been revoked and that negotiations for the settlement of the dispute would be opened. Trade between the two countries was now resumed, and on Dec. 28 The Hague Foreign Office declared that the difficulties with Venezuela were provisionally at an end and that the government would take no further action in pressing its demands but await the issue of the conciliatory measures proposed by the new government at Caracas.

REACTION AGAINST CASTRO. Meanwhile President Castro had sailed for Europe to undergo a surgical operation, landing at Bordeaux on Dec. 10, and Vice-President Gomez became Acting President. After a short visit to Paris, Castro went on to Berlin for surgical treatment by a German specialist. Rumors abounded as to the nature of his errand, the vast amount of money he had taken with him, and the true reason for his departure at this time. It was said that he had seen that the tide was turning against him and that he had left Venezuela to escape the consequences and without thought of return. On the other hand, it was thought by some that he intended to negotiate in person with foreign governments concerning matters in dispute, but there was evidence that he was not received in this official capacity either in Paris or Berlin. Agitation against him began in Venezuela after his departure and Acting President Gomez was repeatedly urged to join in his overthrow. Finally, on Dec. 16 came the news of a popular tumult in Caracas, where a mob shout-

ing "Down with Castro," wrecked the office of the Venezuelan Lottery Company, a government monopoly, and of a Castro newspaper, attacked the offices of Castro's friends and tore down the inscription in his honor in the public buildings. For some hours the mob controlled the city, but the trouble subsided when Acting President Gomez threatened to employ the military. There was no demonstration against the Netherlands or other foreign powers. Castro's hold on the people had for some time past been growing weaker. Aside from his arbitrary administration, he was blamed for the international difficulties, the falling off of foreign trade, the establishment of monopolies and the failure to take measures to check the spread of the plague. On Dec. 20 Castro's partisans were arrested on a charge of plotting to kill Gomez and his supporters, the political prisoners of the Castro régime were released, and Castro's letter of credit was cancelled. On the following day Gomez dismissed the Castro Cabinet and appointed new Ministers representing the various political factions. President Gomez was said to have had no sympathy with his former chief's foreign policy and the first acts of the new government showed a more conciliatory attitude toward the matters in dispute. On the 24th Castro's decree permitting trade with Colombia at only a few points was revoked, and on the same day José de J. Paul, Minister of Foreign Affairs under Castro, sailed for Paris and The Hague, to negotiate with France and the Netherlands for a settlement of pending disputes.

For further details see *NETHERLANDS, History*, and *UNITED STATES, Foreign Relations*.

VERMONT. One of the North Atlantic States of the American Union, belonging to the New England group. Its area is 9,564 square miles. The population in 1908, according to a Federal estimate, was 353,739.

MINERAL RESOURCES. The products of stone form the chief mineral resources of Vermont. Of these, marble and granite form the larger part of the production. In the quarrying of marble Vermont greatly surpasses any other State. The value of this product in 1907 was \$4,596,724, as compared with a value of \$4,576,913 in 1906. Granite was produced in the State in 1907 valued at \$693,889, which was a great reduction of the value of the product of 1906, which was \$2,934,853. The total value of the stone products of the State in 1907 was \$7,313,739, as compared with a value of the same product in 1906 of \$7,526,466. Slate is produced in large quantities. The value of the product in 1907 was \$1,477,259, as compared with a value of \$1,413,341 in 1906. Manufactures of clay products in 1907 amounted to \$109,500 and to \$315,968 in 1906; 88,550 gallons of mineral water was produced in 1907, valued at \$19,948, as compared with 77,500 gallons valued at \$22,150 in 1906. Other products which are comparatively limited in output are coal products, clay products, lime, mineral waters, metallic paint, sand and gravel, talc, and soapstone. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$9,464,857, as compared with a value in 1906 of \$9,452,504.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm

crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 2,499,000 bushels, valued at \$1,949,000, from 62,000 acres; spring wheat, 23,000 bushels, valued at \$23,000, from 1,000 acres; oats, 2,664,000 bushels, valued at \$1,652,000, from 80,000 acres; barley, 462,000 bushels, valued at \$323,000, from 14,000 acres; buckwheat, 176,000 bushels, valued at \$123,000, from 8,000 acres; potatoes, 1,971,000 bushels, valued at \$1,321,000, from 27,000 acres; hay, 966,000 tons, valued at \$14,041,000, from 870,000 acres; tobacco, 347,000 pounds, valued at \$45,110, from 210 acres. The hay crop of 1908 showed a considerable decrease from that of 1907, which was 1,416,000 tons. The farm animals in the State on January 1, 1909, were estimated to number as follows: Horses, 93,000; dairy cows, 288,000; sheep, 227,000; swine, 98,000. The output of dairy and poultry products is large.

MANUFACTURES. A comparison of the censuses of 1900 and 1905 on the basis of industries carried on in factories shows an increase in the number of wage-earners from 28,179 to 33,106, and in the value of products from \$51,515,000 to \$63,083,600. The values credited to the leading industries in 1905, and (in parentheses) the percentage increase over the 1900 values were: Butter and cheese, \$6,416,400 (16.7); lumber and timber products, \$5,888,400 (no change); marble and stone work, \$4,955,000 (99.5); monuments and tombstones, \$4,615,300 (18.4); paper and wood pulp, \$3,831,400 (13.2); flour and grist mill products, \$3,206,000 (15.8); textiles, woolen goods, \$4,698,400 (82.6); hosiery and knit goods, \$1,988,700 (8.4); and other goods, \$1,086,522 (8.7). Burlington produced \$6,355,700 of the value of products, Barre, \$3,373,000 and Rutland, \$2,522,800.

EDUCATION. The Legislature of 1906 passed several measures of great importance to the advancement of education in the State. It provided for a system of district supervision, and this was put into operation on July 1st, 1907. From that period to July 1st, 1908, there were 20 supervision unions formed, and for the second supervision year beginning July 1st, 1908, six unions were formed. The operation of the system has been very successful. During the first year of its existence, there was an increase, in the twenty unions of two or more towns, over the previous year, of more than 200 teachers' meetings held; nearly 4,000 visits by the Superintendent, and 40,095 days' attendance by the pupils. The Legislature sequestrated three funds to make a permanent school fund for the State: the United States Deposit Fund, amounting to \$669,086.74; the Huntington Fund, \$211,131.46, and the War Claims Fund, granted in 1904 to the State, \$240,000, amounting in all to \$1,120,218.20. Measures were passed by the Legislature providing for the transportation of pupils who were not conveniently situated for attending schools. This law did away with a great number of small schools in rural communities, most of which numbered less than ten pupils. A law was passed classifying high schools and specifying the conditions that should govern them. The total number of pupils in the State in 1908 was 65,781. Of these 41,135 were between the ages of 8 and 18 years. The number of male pupils was 33,057; female

pupils, 32,724. The average attendance per day was 48,606. There were in the State in 1908, 2,484 public schools. Of these 832 were graded schools. There were 2,165 school house in the State. The male teachers numbered 354, and the female teachers 3,561. The average wages per month was, \$30.32 for men in ungraded schools, and \$48.16 in graded schools; \$32.02 for women in ungraded schools, and \$39.08 in graded schools. The total sum raised for educational purposes in the State in 1908 was \$2,016,014.62.

FINANCE. The Report of the State Treasurer for the fiscal year ending June 30th, 1908, shows that there was a balance on hand July 1st, 1907, of \$484,080. The total receipts for the year 1908 were \$1,852,437, and the total disbursements were \$1,819,284, leaving cash on hand and in banks June 30th, 1908, to the amount of \$517,234. The chief sources of revenue were taxes from savings banks and trust companies, \$402,479; from railroads, \$237,970, and from insurance companies, \$108,043. The chief disbursements were on account of the permanent school fund \$237,554; distribution of the State school tax of 1907, \$152,064, and the distribution of the State highway tax of 1907, \$98,310. The permanent school fund on July 1, 1908, amounted to \$470,835, and the Agricultural College fund to \$135,500.

POLITICS AND GOVERNMENT. Redfield Proctor (q. v.), United States Senator from Vermont, died on March 4th, and on March 24th Governor Proctor appointed John W. Stewart to serve in his place until his successor should be elected. On October 21st Carroll S. Page, Governor of the State from 1890 to 1892, was elected to fill the unexpired term. W. P. Dillingham was reelected Senator to succeed himself.

CONVENTIONS AND ELECTIONS. Town and city elections were held on March 2nd. The interest centred in the vote for or against license. No-license made decided gains. Barre and St. Albans changed from "wet" to "dry," while Burlington swung from no-license to license. The Republicans generally elected their town officers. The Republican State Convention on April 29th chose uninstructed delegates to the National Convention. The Democratic State Convention met on June 26th. A resolution to instruct the delegates for the National Convention for W. J. Bryan was defeated. Nominations were made for a State ticket, and James E. Burke was nominated for Governor. The Republican party on July 1st nominated Lieutenant-Governor George H. Prouty for Governor. In the State election, held on September 1st, the Republican candidate for Governor received a plurality of about 26,000. The entire Republican ticket was elected, but the Democrats increased their membership in the House of Representatives from 32 to 42. In the election of November 3rd the Republican party carried the State by a plurality of about 28,000. The detailed vote for national and State tickets; Taft, 39,552; Bryan, 11,496; Chafin, 799; Hisgen, 804. Prouty, 45,598; Burke, 15,953.

OTHER EVENTS. On October 27th an explosion and fire which destroyed the Boston and Maine and Canadian Pacific grain elevator at Richford, caused the death of thirteen persons, including two women.

STATE OFFICERS. Governor, George H. Prouty; Lieutenant-Governor, John A. Mead; Secretary of State, Guy W. Bailey; Treasurer, Edward H.

Deavitt; Auditor, Horace F. Graham; Attorney-General, J. G. Sargent; Superintendent of Education, Mason S. Stone; Commissioners of Insurance, E. H. Deavitt and Guy W. Bailey—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, John W. Rowell; Assistant Justices, Loveland Munson, John H. Watson, Seneca Haselton; Clerk, M. E. Smilie—all Republicans, except Haselton.

The State Legislature of 1909 is composed of 28 Republicans and 2 Democrats in the Senate, 201 Republicans, 31 Democrats, 3 Independent Democrats, and 1 Independent Republican in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

VETERINARY SCIENCE. Quite a step was taken during the year 1908 toward the advancement of veterinary education in the United States. Inasmuch as over 800 veterinarians were employed by the United States Department of Agriculture in the various kinds of work conducted by the Bureau of Animal Industry it was important that men be well equipped to thorough education to fill these positions. With this in view the Secretary of Agriculture appointed a committee of five prominent veterinarians to obtain information regarding the courses of instruction given at the various veterinary colleges throughout the United States. In the report of this committee recommendations were made as to the matriculation examination and course of instruction necessary to qualify graduates for admission to the Civil Service examination for the position of Veterinary Inspector in the Bureau of Animal Industry. As only eleven out of nineteen veterinary colleges visited were so rated that their graduates are recommended as eligible to the United States Civil Service examination it is quite evident that the investigation will result in the raising of the standard of the veterinary colleges.

TUBERCULOSIS. Tuberculosis in 1900 continued to receive more attention than any other disease. In October the International Congress on Tuberculosis was held at Washington, D. C., at which all phases of this, the greatest medical problem before the people, was discussed. Dr. Robert Koch and his followers repeated the view that while human beings may be infected by bovine tubercle bacilli, serious disease from that cause occurs very rarely and therefore measures against tuberculosis should be directed primarily against the propagation of the human tubercle bacilli. This, however, was not the view held by a great majority of the bacteriologists that have investigated the disease who consider tuberculosis in cattle a most serious menace to public health, and one that urgently calls for eradication. Among the foremost in this latter view was Dr. Theobald Smith, of Harvard University, who first called attention to the differences between the tubercle bacilli found in man and in cattle. He maintained that perhaps half of certain kinds of tuberculosis in children, such as those of the glands of the neck and the abdomen, are due to infection from milk; that while these bacilli can be modified to a certain extent, such modification does not mean a change of type, and that any transformation from one type to the other has still to be demonstrated. Dr. E. C. Schroeder of the Bureau of Animal Industry, in repeated tests and bacteriological examinations, found that the most common way in which the tubercle bacilli leaves the body of infected cattle

is in the faeces. An examination of 172 samples of milk sold in the District of Columbia showed that 70 per cent. of these samples contained cattle faeces. The presence of faeces in milk from tuberculous herds was conclusive evidence that the milk also contains tubercle bacilli.

HOG CHOLERA. Further investigations by the Bureau of Animal Industry, coöperating with State Agricultural Experiment Stations, demonstrated that the serum-simultaneous method of immunization could be practically applied, and that it would undoubtedly prevent a large part of the annual loss of millions of dollars in the United States, due to hog cholera. This method consisted of the injection on one side of the body of a pig with a suitable quantity of serum obtained from hyperimmunized hogs and simultaneously on the other side of the body of a quantity of virulent blood taken from a hog sick of hog cholera. Experiments showed that hogs in this way were given a firm immunity that lasts six months, and probably much longer.

TEXAS FEVER OR BOVINE PIROPLASMOSIS. The work of eradicating the cattle tick was continued by the United States Department of Agriculture under the appropriation of \$150,000, in coöperation with the various States interested. During the fiscal year ended June 30th, 1908, there were released from quarantine in California 21,136 square miles, in Texas 660 square miles, in Oklahoma 2,612 square miles, in Arkansas 3,071 square miles, in Tennessee 3,820 square miles, in North Carolina 6,312 square miles and in Virginia 3,181 square miles, a total of 40,798 square miles. In addition to these States, active operations were carried on in South Carolina, Georgia, Alabama, Mississippi, Louisiana and Missouri. A total of 2,271,436 inspections were made during the year. That the work of eradication carried on during the last three years had resulted in freeing more than 64,000 square miles of territory was sufficient proof that a complete eradication of cattle tick from this country is possible. Besides the State coöperation, that of the individual cattle owner is the most necessary in the work of eradication.

FOOT AND MOUTH DISEASE. This was one of the contagious diseases of live stock that the United States quarantine against importations of domestic animals had since the outbreak in New England in 1902-03 prevented from entering the country until 1908. In November, 1908, the disease was discovered in cattle at Dansville, Pennsylvania. A quarantine was immediately declared by the Secretary of Agriculture against the interstate movement of cattle, sheep, swine and goats from the several counties in that vicinity. The disease was found to have been introduced with cattle shipped from Buffalo (N. Y.) stock yards. Upon further investigation the infection was found to have originated in Wayne County, Michigan, and to have in some manner been brought there from abroad, probably in such material as straw, merchandise, clothing or biological products, or with the effects of immigrants. The disease was also found to have spread in New York and into Maryland through the shipment of stocks from Buffalo, and these localities were quarantined. By the coöperation of national and State officials the affected herds were slaughtered and buried in great trenches, and

all infected barns disinfected. On December 31st the disease appeared to be well in hand with every prospect of a complete eradication. The disease is a highly contagious one among many animals, and even man is not immune. It is due to an ultra-microscopic organism. The disease is characterized by acute fever, accompanied by the appearance of small vesicles or blisters in the mouth and around the coronets of the feet and between the toes.

VIADUCT. A single track railway viaduct recently completed at Westerburg, Germany, is peculiar in its design, in that, instead of having two-bent braced towers to support the several spans, single rocker bents are used. The truss system also, instead of being either continuous, or a series of simple spans, consists of a succession of cantilevers. It crosses the valley of the Holzbach at a maximum height of 73 feet, and has a total length of 742 feet. There are five openings, alternately 142 and 158 feet long, the middle and end ones being short, and the suspended spans long. The length of the latter is 110.6 feet, while each cantilever arm is 23.7 feet. The depth of truss is constant, being 15.8 feet, and the distance, centre to centre of trusses, is 10.8 feet.

VICTORIA. A state of Australia. Area, 87,884 square miles; population at the end of 1906, 1,231,940. Melbourne, the capital, had an estimated population of 526,400 on the same date. For details regarding population, education, production, etc., see AUSTRALIA. The executive power is vested in a Governor appointed by the Crown and acting through a responsible Ministry. The Parliament consists of a Legislative Council of 35 members elected for six years, and a Legislative Assembly of 68 members elected for three years. The members of the former are elected upon a property franchise; those of the latter are elected by universal manhood suffrage. The Governor is Sir Thomas D. G. Carmichael. The Premier is Sir Thomas Bent.

The pure food and market supervision acts were declared by the premier, Sir Thomas Bent, to have reduced the death rate to a point lower than that of any other country except New Zealand, namely, to 12 per thousand. In June, Sir T. D. Gibson Carmichael was appointed governor. Parliament was opened the first week of July, and among the measures proposed was a plan for the levying of land taxes in a manner that should promote subdivision and render the occupation of private lands more profitable. The financial condition was declared to be excellent, public burdens during the last five years having been greatly diminished, according to the premier, and public indebtedness reduced. In the first weeks of December a vote of no confidence was passed and the governor sanctioned a dissolution. The question at issue for the next election was the retention of Sir Thomas Bent as premier.

VIELÉ, HERMAN KNICKERBOCKER. An American author, painter and engineer, died on Dec. 14th, 1908. He was born in New York City on Jan. 31st, 1856. He was educated in civil engineering by his father, and practiced his profession for many years, engaging in painting and writing as a pastime. In later years the latter subjects engaged more and more of his attention; and in 1900 he retired from engineering practice in order to devote himself

exclusively to art and literature. His paintings attracted some attention, but he is best known for his verse, and for his novels. These are: *The Inn of the Silver Moon* (1900); *The Last of the Knickerbockers* (1901); *Myra of the Pines* (1902); and *Random Verse* (1903). His last novel, *Heartbreak Hill*, appeared a few months before his death.

VILLAS, WILLIAM FREEMAN. An American political leader, Postmaster-General, and Secretary of the Interior, in the Cabinet of President Cleveland, and United States Senator from Wisconsin, died on Aug. 27th, 1908. He was born at Chelsea, Vt., on July 9th, 1840, graduated at the University of Wisconsin in 1858, and at the Albany Law School in 1860. In 1862 he joined the Union Army as captain of Company A of the Twenty-third Wisconsin Volunteers, and for the bravery he displayed in several engagements was promoted to the rank of lieutenant-colonel. His regiment took part in the siege of Vicksburg, and he remained in command until the fall of 1863, when he resigned his commission and resumed his law practice at Madison, Wis. He soon gained considerable prominence as a lawyer, and in 1875 was made a member of the commission appointed to revise the Statutes of Wisconsin. From 1881 to 1885 he was a professor in the University of Wisconsin Law School. In 1876 he was chosen Wisconsin member of the Democratic National Committee, a position he filled continuously for ten years. In 1884 he was elected a delegate-at-large to the Democratic National Convention, of which he was chosen permanent chairman. The following year he entered President Cleveland's Cabinet as Postmaster-General, and he remained in charge of that department until 1888, when he became Secretary of the Interior. At the end of Mr. Cleveland's first administration, he returned to his law practice, and in 1891 was elected United States Senator from Wisconsin for the term ending in March, 1897.

VIRGINIA. One of the South Atlantic States of the American Union. Its total area is 42,627 square miles. The population, according to a Federal estimate made in 1908, was 2,012,746.

MINERAL RESOURCES. In common with most of the other coal producing States, the coal production of Virginia in 1907 increased largely over the production of 1906. The amount mined in the former year was 4,710,895 tons, as compared with 4,254,879 tons in 1906; the value of the product in 1907 was \$4,807,533, as compared with a value in 1906 of \$4,183,991, the first time in recent years the average price per ton of coal in Virginia exceeded one dollar. Although the coal fields of southwestern Virginia, from which the present production chiefly comes, are of comparatively limited extent, the high quality of the coal and the number and thickness of the beds give promise of a considerably increased production in the next few years. In 1907 there were employed in the mines of Virginia 6,670 men. The number of mining machines used in the State increased from 37 in 1906, to 77 in 1907. There were no labor disturbances of any kind in the coal mines of Virginia in 1907. The manufacture of coke in 1907 shows a slight decrease over the amount produced in 1906. The figures for the former year were 1,445,280 short tons, as compared with 1,557,659 short tons in 1906. The

value of the product, however, was slightly greater in 1907 than in the previous year. The value of the product for the former year was \$3,765,733, as compared with \$3,611,659 in 1906. The production of iron ore fell off slightly in 1907, as compared with the amount produced in 1906. There were produced in 1907, 786,856 long tons, valued at \$1,538,920, as compared with 828,081 tons, valued at \$1,579,817 in 1906. The amount of pig iron produced in 1907 was 478,771 long tons, as compared with 483,525 long tons in 1906. The products of clay fell in value from \$1,966,078 in 1906, to \$1,611,335 in 1907. The value of the various kinds of stone produced in 1907 was \$760,488, a substantial increase over the value of the product for 1906, which was \$606,343. The greater part of the stone produced is granite and limestone. Other important mineral products are coal products, building stone, talc and soapstone, pyrite, mineral waters, lime, slate, zinc, sand and gravel, manganese ores, barytes; also unclassified, arsenic, asbestos, cement, copper, gypsum, lead ochre, quartz, precious stones, salt, and sand-lime brick. Gold was produced in the State in 1907 to the amount of 400.93 fine ounces, valued at \$8,288. There were produced 58,880 pounds of copper, valued at \$11,766. According to the figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$19,313,182, as compared with a value in 1906 of \$24,650,814.

Careful estimates indicate that the production both of coal and coke in the State decreased from 40 to 50 per cent. in 1908, as compared to 1907. This decrease is attributed entirely to the effect of the panic, as there were no strikes, lockouts or other labor troubles during the year. Most of the decreased production occurred during the first part of the year, in which period the output was a bare 40 per cent. of that for the corresponding period of 1907. The gain in the latter half of the year was due largely to the strike of the miners in Alabama, which caused furnace men to turn to Virginia mines for their fuel supply.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 50,050,000 bushels, valued at \$35,536,000 from 1,925,000 acres; winter wheat, 8,892,000 bushels, valued at \$8,981,000 from 780,000 acres; oats, 3,820,000 bushels, valued at \$2,101,000 from 200,000 acres; barley, 84,000 bushels, valued at \$58,000 from 3,000 acres; rye, 188,000 bushels, valued at \$154,000 from 3,000 acres; buckwheat, 360,000 bushels, valued at \$259,000 from 20,000 acres; potatoes, 5,016,000 bushels, valued at \$3,612,000 from 57,000 acres; hay, 618,000 tons, valued at \$7,570,000 from 470,000 acres; tobacco, 114,100,000 pounds, valued at \$10,497,200 from 140,000 acres. The production of corn increased considerably in 1908 over 1907, when the crop was 46,025,000 bushels. In the production of tobacco the State ranks third, being surpassed only by Kentucky and North Carolina. The tobacco crop of 1908 was a marked increase over that of 1907, which was 74,556,000 pounds, while the acreage increased from 98,100. The number of farm animals Jan. 1, 1909, was estimated as follows: Horses, 314,000; mules, 53,000; dairy cows, 294,000; other animals, 578,000; sheep, 517,000;

swine, 806,000. The wool clipped in 1908 was estimated at 1,687,500 pounds, valued at \$470,813.

MANUFACTURES. That very considerable progress was made from 1900 to 1905 is shown by the increase in the capital employed in industries carried on in factories from \$92,299,000 to \$147,989,000, of the number of wage-earners from 66,223 to 80,285, and of the value of products from \$108,644,000 to \$148,856,000. Of the wage-earners in 1905, 11,990 were women and 3,240 were children under 16. The value of products of principal industries in 1905 and (in parentheses) the percentage increase over 1900 were: Flour and grist mill products, \$13,832,000 (54.7); lumber and timber products, \$13,040,800 (12.1); chewing and smoking tobacco and snuff, \$10,662,000 (no change); railway repair shops, \$8,693,000 (38.5); cigars and cigarettes, \$6,105,900 (26.1); tanned and finished leather, \$5,829,800 (23.6); iron and steel, \$4,859,000 (41.7); fertilizers, \$4,659,000 (36.4); cotton goods, \$4,484,000 (68.9); planing mill products, \$4,224,000 (57.2); printing and publishing, paper and wood pulp, hosiery and knit goods, and woolen goods also had considerable values. Of the value of products, \$28,202,600 was due to Richmond; \$9,053,900 to Newport News; \$5,900,000 to Norfolk; \$5,890,500 to Petersburg; \$5,544,900 to Roanoke; \$4,965,400 to Lynchburg, and \$4,774,800 to Danville.

EDUCATION. The State Superintendent of Education issues only biennial reports, and the latest statistics available are those for the year 1906-7. At that time there was an enrollment in the State of 257,654 white and 111,677 colored pupils. The average attendance was 158,891 white, and 63,676 colored. The attendance and enrollment were less than in 1906, the reason given being the scarcity of labor and the presence of contagious diseases. The high schools in 1907 numbered 213, with a total enrollment of 9,196. There were 7,248 white and 2,220 colored teachers. The total expenditure for school purposes in 1907 was \$3,308,086, showing an increase of 40 per cent. in two years.

POLITICS AND GOVERNMENT. There was no election for State officers in Virginia in 1908. Among the measures passed at the legislative session of 1908 was one providing for the execution of condemned criminals at the State penitentiary by electricity. Several important judicial decisions were rendered during the year. On Jan. 15th, Judge Pritchard of the U. S. Circuit Court of Appeals decided the case of the Merchants' Coal Company vs. the Fairmont Coal Company, reversing the Circuit Court of the U. S., which had granted an injunction restraining the appellant, an independent coal company, from prosecuting its complaint against the Baltimore and Ohio Railroad. The case related to an alleged discrimination in the distribution of cars on the part of the railroad, which caused damage to independent coal producers. By a decision rendered on March 12th, the State Supreme Court declared that the city of Norfolk had the right to tax wharf property, valued at \$1,000,000, belonging to various railroads. The United States Supreme Court, on Nov. 30th, reversed the decision of Judge Pritchard, which held the two-cent passenger rate law proposed by the Virginia Corporate Commission to be void because confiscatory. The decision did not

pass upon the question of confiscation, but on the procedure adopted by the Southern Railway and five other railroads, which sought the intervention of the Federal Courts before exhausting the remedies provided by Virginia law. (See RAILWAYS.) As a result of failure to reach an agreement between the employees and officials of the Southern Railway in regard to wages, President Finley of the railroad on Feb. 25th referred the question to the Interstate Commerce Commission and the Commissioner of Labor under the Erdmann Act.

CONVENTIONS AND ELECTIONS. The Republican State Convention at Lynchburg on April 8th selected delegates to the National Convention, and instructed them to vote for W. H. Taft for President. On June 11th the Democratic State Convention at Roanoke took similar action in regard to W. J. Bryan. In the election of Nov. 3rd, the Democratic plurality was about 30,000, which was a slight decrease from the Democratic plurality of 1904. The detailed vote for the national ticket was as follows: Bryan, 82,906; Taft, 52,573; Chaffin, 1,111; Debs, 256.

OTHER EVENTS. In January the Seaboard Air Line Railway was placed in the hands of receivers by the Federal Court (see RAILWAYS). There were outbreaks of lawlessness in various parts of the State during the year. In May three men were killed near Philpott, Henry County, as the result of an old-time family feud. In August Portsmouth was the scene of a riot, which broke out on account of an alleged attack by a negro on a white woman, whites and blacks trying to lynch the man, since electrocuted. To hold the enraged mob in check the militia patrolled the streets. In the latter part of September a party of desperadoes terrorized Arvonnia, in Buckingham County. The disturbance was the result of reports by people of the county of illicit distilleries run by four men. On April 15th a shortage of 125,000 was discovered in the bank at Mecklenburg. The cashier confessed to having permitted a prominent business man to overdraw his account without the consent of the officers of the bank.

LEGISLATION. Among the important measures passed at the legislative session of 1908 were the following: A child labor law was enacted (see CHILD LABOR). Several important measures were passed relating to injunctions. A law was passed providing for electrocution as the death penalty. Measures were enacted for the retirement and pensioning of public school teachers. The selling or giving away of cocaine was forbidden, and measures were passed regulating the practice of pharmacy. Several important measures were enacted relating to railroads.

STATE OFFICERS. Governor, Claude A. Swanson, Dem.; Lieutenant-Governor, J. T. Ellyson; Secretary of Commonwealth, D. Q. Eggleston; First Auditor, Morton Marye; Treasurer, A. W. Harman, jr.; Superintendent of Instructions, J. D. Eggleston; Attorney-General, W. A. Anderson; all Democrats.

JUDICIARY. Supreme Court of Appeals: President, James Keith; Justices, S. G. Whittle, John A. Buchanan, George M. Harrison and Richard H. Cardwell; Clerk of the Court, H. Stewart Jones; all Democrats.

The State Legislature of 1908 was composed of 35 Democrats and 5 Independents and Republicans in the Senate and 86 Democrats and 14

Independents and Republicans in the House. The State representation in Congress will be found in the article UNITED STATES, under section Congress.

VIRGINIA, UNIVERSITY OF. An institution of higher learning at Charlottesville, Va., founded in 1819 by Thomas Jefferson. The attendance in 1907-8 was 788 and in the autumn of 1908 it was 766, distributed as follows: Arts, 295; law, 284; graduate students, 32; applied science, 101; medicine, 189. The four years' high school course is accepted for all departments except medicine, in which latter department, in addition to the high school course, one year of college work is required. Tuition is free to Virginia students in the academic schools, and there are a number of scholarships. The annual income is \$210,000. The staff of instruction, now about 100, has been doubled since 1905. The university campus was opened in 1908 and great development was made in the facilities for the schools of science and medicine. The president is Edwin A. Alderman.

VIRGIN ISLANDS. A group of islands in the West Indies, forming a Presidency of the Leeward Islands. Area, 58 square miles; population (1906), 4,908. Sugar and cotton are grown, and fishing is carried on. In 1907-8 the imports and exports amounted to £7,009 and £6,027, respectively. The revenue was £3,791, the expenditure £4,367. The Commissioner in 1908 was R. S. Earl.

VITAL STATISTICS. Statistics for the City of New York for the year 1908 exhibited an increase in the birth rate and a decrease in the death rate over previous years. Dr. Darlington, Commissioner of Health, showed that the death rate for the city had been steadily decreasing for the previous five years. The total number of deaths was 73,171; that is, a rate of 16.52 per thousand of population. This is the lowest mortality in the history of the city. Deaths from typhoid fever were decreased by 197, malaria 42, smallpox 7, whooping cough 184, diphtheria and croup 317, influenza 77, pulmonary tuberculosis 573, spinal meningitis 778, apoplexy 1,116, acute bronchitis 735, pneumonia 2,823 and bronchial pneumonia 149. There was a decrease of 3,015 in the deaths of children under 5 years of age. The advance of sanitary science and popular education in hygiene was believed to account for the low mortality. The total number of births was 126,863, a rate of 28.86 per thousand, the highest in the city's history.

Dr. J. P. Nichols, basing his deductions on the available statistics of living births in all parts of the world, aggregating 693,785,722, says that ordinarily there is a constant excess of male over female births. In the United States in 8,377,527 white births there were an average of 1,059 sons for every 1,000 daughters. An aggregate of 649,415,411 European births gave an average of ratio of 1,057 sons for every 1,000 daughters. The Mussulman or Arabian population of Algeria gives a ratio of 1.191 sons to 1,000 daughters. In India the ratio is 1.075, in Japan 1.047. The colored race of the United States gives the lowest ratio, 778,443 births yielding 1,009 male to 1,000 female births.

SMALLPOX. There was a total of 35,174 cases of smallpox in the United States, with 76 deaths. The States which had any considerable number of cases were: California, 986 cases, 6 deaths;

Colorado, 271 cases; Illinois, 2,067 cases; Indiana, 2,064 cases, 7 deaths; Iowa, 2,488 cases, 4 deaths; Kansas, 3,458 cases, 3 deaths; Michigan, 2,091 cases, 9 deaths; Minnesota, 7,031 cases, 6 deaths; Missouri, 863 cases, 5 deaths; Montana, 732 cases; New York, 846 cases, 1 death; North Carolina, 1,256 cases; Ohio, 863 cases, 3 deaths; Oregon, 664 cases; Tennessee, 676 cases, 1 death; Texas, 3,161 cases, 1 death; Utah, 575 cases, 1 death; Virginia, 396 cases; Washington, 596 cases, 3 deaths; Wisconsin, 1,925 cases, 4 deaths.

PLAGUE. There were 41 cases of plague in the United States, all in California, with 16 deaths. The disease was distributed in all parts of the world, India being the heaviest sufferer with 205,769 cases and 163,126 deaths. China had 1,073 cases and 1,005 deaths. Egypt, 1,317 cases, 708 deaths; Japan, 1,785 cases, 1,437 deaths. Among the South American countries Brazil had 180 cases, 99 deaths; Chile, 290 cases, 70 deaths; Peru, 1,437 cases, 750 deaths. These statistics of plague are compiled from the *Public Health Reports of the United States Marine Hospital Service* and are, as regards foreign countries, admittedly incomplete and incorrect, although the best obtainable.

YELLOW FEVER. There were only 2 cases of yellow fever in the United States, these occurring in Galveston, Texas, and both died.

VIVISECTION. The usual amount of antivivisection agitation was observed during 1908, both in the United States and England, without, however, rousing much public interest or support. Bills strictly regulating animal experimentation were introduced in the legislatures of New York and New Jersey. There was a joint hearing in the Senate Chamber on March 25 before the Senate and Assembly Judiciary Committees of New York. Delegates from New York City, Buffalo, Syracuse and other parts of the State appeared in opposition to antivivisection legislation. The argument in favor of the bills was divided into two parts. First, it was argued that animal experimentation had not been of incalculable benefit to humanity, and denial made of its benefit, not even excepting the antitoxin treatment for diphtheria and meningitis. Second, it was averred that the experimenters worked in secret, and that, working in this way, their natural brutality led them to inflict most atrocious cruelties on weak and defenseless animals. A hearing was held in March before the Legislative Committee of the New Jersey Assembly on the antivivisection bill. Four men and two women were present as advocates and spoke in favor of the bill, while about 250 physicians and educators attended to present the scientific side of the case. According to the *Journal of the Medical Society of New Jersey*, the advocates of the bill disclaimed opposition to animal experimentation, but wanted such regulations, restrictions and inspections as would practically prevent the progress of medicine. They wished such experimentation confined to medical schools. In the widespread public discussion of vivisection, the newspapers, with few exceptions, gave their support to animal experimentation.

VOIT, CARL VON. A German physiologist, died on Jan. 31, 1908. He was born at Amberg on Oct. 31, 1831, studied medicine at Munich and Würzburg and chemistry at Göttingen, became professor extraordinarius in physiology at

Munich in 1860 and professor ordinarius and conservator of the Physiological Institute there in 1863, which chair he held at the time of his death. His investigations prompted the invention of the Pettenkofer respiration appliance, and, with Pettenkofer, he determined the amount of metabolism in a healthy person on different diets, as well as the metabolism of patients suffering from various diseases, experiments which established a scientific basis for the principles of nutrition. His publications include *über die Entwicklung der Erkenntnis* (1879), *Physiologie des allgemeinen Stoffwechsels und der Ernährung*, in Hermann's *Handbuch der Physiologie* (1881), and numerous contributions to the *Zeitschrift für Biologie*, of which he was one of the founders.

VOLCANOES. The year 1908 seems to have been a period of subsiding activity for most of the volcanoes. As an exception to the general rule, the volcanic Bogosloff island group, in the Aleutian chain, which had previously been the scene of many explosive outbreaks whereby new islands were brought into existence and old ones destroyed, was reported to have undergone further changes. The islands are rarely visited and no details of the last disturbance have as yet come to hand. Considerable interest was manifested in connection with the Italian earthquake of December 28 and its possible bearing with regard to the volcanoes of the same region, but the latter showed no abnormal activity. See **EARTHQUAKES**.

WAKE. One of the group of islands in the Pacific Ocean belonging to the United States. It is in the direct route from Hawaii to Hongkong, about 2,000 miles from the former and 3,000 from the latter. The island was acquired in January, 1899. Others among the group of islands in the Pacific in the possession of the United States are Christmas, Penrhyn, Midway and Marcus. The Midway Islands are occupied by a colony of telegraphers, who have charge of the relay in the cable line connecting the Philippines with the United States. A camp of United States marines is also stationed there. In all there are about forty persons on the island.

WASHINGTON. One of the Western States of the American Union. Its area is 69,127 square miles. The population in 1908, according to a Federal estimate, was 646,799.

MINERAL RESOURCES. Although a good part of the market for Washington coal in California has been lost through the increased production of fuel oil in that State, Washington shared the general increase in the production of coal in 1907. The total amount produced was 3,680,532 short tons, with a spot value of \$7,639,801. As compared with the production of 1906, this was an increase of 404,348 short tons in quantity and of \$1,771,367 in value. In November and December, owing to the financial disturbance, the output of the mines was curtailed by 33 per cent. The number of men employed in the coal mines of the State increased from 4,529 in 1906 to 5,945 in 1907. There were 36 fatal accidents in the mines of the State in 1907. The stone products for 1907 were valued at \$920,254, of which granite composed the larger part. The production in 1906 was valued at \$738,652. Other mineral products of the State were coal products, lime, coke, gold, sand and gravel, copper, silver; also, unclassified, antimony,

arsenic, lead, mineral waters, platinum, tungsten and zinc. According to figures of the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$11,617,706 as compared with a value in 1906 of \$9,936,143. The production of gold in Washington was probably greater in 1908 than in 1907, and the output was \$262,300. Most of the mining activities concentrated in Stevens, Ferry and Okanogan Counties. Concentrating operations were begun in the Metaline lead mining district, which is still suffering from lack of transportation facilities. It is estimated that the coal production of Washington in 1908 was between 20 and 25 per cent. less than that of the preceding year. The records of the State coal mining inspector showed that for the first six months of 1908 the total production was 1,229,146 short tons; it is estimated that the total production for the year will be something over 2,800,000 tons, as compared with 3,680,532 tons in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to the United States Department of Agriculture, were as follows: Corn, 332,000 bushels, valued at \$252,000, from 13,000 acres; winter wheat, 14,112,000 bushels, valued at \$11,572,000, from 576,000 acres; spring wheat, 13,050,000 bushels, valued at \$10,701,000, from 870,000 acres; oats, 8,633,000 bushels, valued at \$4,144,000, from 194,000 acres; barley, 5,185,000 bushels, valued at \$3,007,000, from 170,000 acres; rye, 58,000 bushels, valued at \$52,000, from 3,000 acres; potatoes, 4,560,000 bushels, valued at \$3,055,000, from 28,000 acres; hay, 839,000 tons, valued at \$9,229,000, from 373,000 acres. The agricultural development of the State has been greatly stimulated in recent years by several large irrigation projects, undertaken by the United States Reclamation Service. The greater part of the area thus made available is devoted to the production of fruits. (See **IRRIGATION**.) The number of farm animals on Jan. 1, 1909, is estimated as follows: Horses, 320,000; mules, 5,000; dairy cows, 195,000; other cattle, 381,000; sheep, 799,000; swine, 197,000. The wool clipped in 1908 is estimated at 4,080,000 pounds, valued at \$632,000.

EDUCATION. According to the reports of the State superintendent the school population (ages 5 to 21) in 1908 numbered 247,997 and in 1907, 235,061. The total enrollment in public schools in 1908 was 198,214, and in 1907, 188,989. The average daily attendance in 1908 was 142,275, or 71.77 per cent. of the enrollment, and in 1907, 130,750. The private school enrollment in 1908 was 8,580. The average length of the school term in 1908 was 136 days. Only six States west of the Appalachian Mountains and only three west of the Mississippi River had a longer school term. The number of teachers in 1908 numbered 6,424, and in 1907, 6,209. Of these, 5,142 were women. The average monthly salary of men teachers was \$75.65, and of women teachers \$58.99. The number of high schools in 1908 was 217, with a total enrollment of 14,715. The total expenditures for public schools in 1908 were \$7,211,466.68, and in 1907, \$5,649,856. The total value of the permanent school funds and of productive school lands was \$15,585,900, while there were 1,114,469 acres of unleased school land, valued at \$22,411,978. The State educational institutions are the university at Seattle,

the State college at Pullman and State normals at Ellensburg, Cheney and Bellingham.

FINANCE. The report of the State Treasurer for the years Oct. 1, 1906, to Sept. 30, 1908, show a balance in the treasury on Sept. 30, 1906, of \$1,077,560. The total receipts into all funds in that period were \$10,854,281 and the total disbursements, \$11,053,375. Of the amounts received into the general fund, that from taxation amounted to \$2,729,177; from liquor license fees, \$108,175; from the sale and lease of tide lands, \$223,881. The permanent school fund had cash on Sept. 30, 1908, amounting to \$299,909. The State Board of Finance has invested permanent institutional funds to the amount of \$475,850. These funds are: University fund, scientific school fund, agricultural college fund, and other State institutions. The amount of the State debt on Sept. 30, 1908, was \$967,576, which was a reduction of \$125,406 since October, 1906.

CHARITIES AND CORRECTIONS. The Board of Control, which has charge of the charitable and correctional affairs in the State, has full power, by a law of 1907, to govern and manage the following institutions: The Western Washington Hospital for the Insane at Steilacoom, the Eastern Washington Hospital for the Insane at Medical Lake, the State Penitentiary at Walla Walla, the State Training School at Chehalis, the State Soldiers' Home at Orting, the Institution for the Feeble-Minded at Medical Lake, and the State School for the Deaf and Blind at Vancouver. The number of inmates at these institutions on Sept. 30, 1908, was as follows: Western Washington Hospital for the Insane, 1,180; Eastern Washington Hospital for the Insane, 609; State Penitentiary, 920; State Training School, 216; State Soldiers' Home, 327; School for Deaf and Blind, 120; Institution for Feeble-Minded Children, 154. The total expenditures for the maintenance of these institutions for the two years ending Sept. 30, 1908, were \$1,102,095. The Board of Control, in its annual report, recommends the separation of the State School for the Deaf and Blind into two separate institutions. It recommends, also, the construction of new buildings for the State Institution for Feeble-Minded Children, as the present structures are entirely inadequate.

POLITICS AND GOVERNMENT. The local political interest of the year centred in the direct primary elections, held for the first time under the new law, on Sept. 8. The most important question at issue was the Republican nomination for senator. Senator Levi Ankeny was a candidate for reelection, and opposed to him was Wesley L. Jones, a Congressman from the State. A spirited campaign preceded the primary, which resulted in the nomination of Mr. Jones by a decisive plurality. Samuel G. Cosgrove was nominated by the Republicans for governor, defeating Henry McBride, who was the candidate of the faction headed by Senator Ankeny, and also defeating A. E. Mead, the incumbent. The working of the primary law in general gave great satisfaction, but criticism was made by leaders in both parties of the participation of Democrats in the Republican party, and *vice versa*.

CONVENTIONS AND ELECTIONS. The Republican State Convention on May 14 selected delegates to the National Convention, instructed to vote for W. H. Taft for president. The Democratic State Convention instructed the delegates chosen to vote for W. J. Bryan. The results of the primary election are noted in the paragraph above.



**A group of Exposition Buildings showing progress reached six months before the opening of the Fair
Photograph taken Dec. 2, 1908**



Looking down Yukon Avenue

**ALASKA-YUKON-PACIFIC EXPOSITION
SEATTLE, WASHINGTON**

In the election of Nov. 3 the Republicans carried the State by a plurality of about 50,000, electing all the State officers. The detailed vote for national and State tickets was as follows: Taft, 106,062; Bryan, 58,691; Chafin, 4,700; Debs, 14,177. Cosgrove, 110,190; — (Dem.), 58,126.

OTHER EVENTS. Arrangements were made in April, after efforts extending over 15 years, for the entrance of the Great Northern Railway into Tacoma over the tracks of the Northern Pacific from Seattle. The Spokane, Portland & Seattle, a J. J. Hill railroad, was completed in September from Pasco to Vancouver. The year was marked by heavy railroad construction in the State. The Chicago, Milwaukee & Puget Sound, an extension of the C., M. & St. P., built across Washington, and the North Coast Railroad also pressed far along construction of a similar line. The Atlantic battleship fleet, commanded by Rear Admiral C. S. Sperry, visited the Puget Sound cities May 21-26. The Alaska-Yukon-Pacific Exposition, arranged for the year 1909, on the ground of the University of Washington, was practically completed as far as its buildings were concerned at the end of 1908. This exposition, which is discussed under **EXPOSITIONS**, promised to be one of the most successful exhibitions ever held in the United States.

STATE OFFICERS. Governor, Samuel G. Cosgrove, Rep.; lieutenant-governor, M. E. Hay; secretary of state, S. H. Nichols, Rep.; treasurer, John G. Lewis, Rep.; auditor, C. W. Clausen, Rep.; adjutant-general, to be named, Rep.; attorney general, W. P. Bell, Rep.; commissioner public lands, E. W. Ross, Rep.

JUDICIARY. Supreme Court: Chief justice, Wallace Mount; associate justices, R. O. Dunbar, H. D. Crow, M. A. Fullerton, F. A. Rudkin, Stephen J. Chadwick—all Rep.; clerk, C. S. Reinhart.

The State Legislature for 1909 is composed of 39 Republicans and 3 Democrats in the Senate, 89 Republicans and 6 Democrats in the House. The State representation in Congress will be found in the article **UNITED STATES**, under the section *Congress*.

WASHINGTON, CITY OF. See **DISTRICT OF COLUMBIA**.

WASHINGTON ACADEMY OF SCIENCE.

A society organized for the assistance of research and the prosecution of any business pertinent to an academy of science, founded in 1898. It acts as a Federal head of the affiliated societies. Its membership in 1908 was 344. It has published ten volumes of proceedings. The president is Charles D. Walcott, and the corresponding secretary is Frank Baker.

WATER PURIFICATION. At the end of 1908 it was evident that the whole of the city of Philadelphia soon would be supplied with water by slow sand filtration. This would give that city a group of plants having by far the largest aggregate water filtering capacity available to any city in the world, and approached only by the various filtration plants under the direction of the Metropolitan Water Board, London, England. Some of the Philadelphia plants had been in use for a number of years previously, with a marked effect in reducing typhoid fever in that city. At Pittsburg, also, the criminally excessive typhoid rate of many years' standing was reduced in 1908 by getting the new slow sand filters into operation. The projected plant for

filtering the Croton supply, New York City, was held up during 1908 by the financial depression and other causes. There was a strong tendency manifested by water engineers to lighten the work of water filters by some preliminary treatment. In the case of rapid or mechanical filters, a coagulant, like sulphate of alumina, has been used for years past, combined with more or less of an opportunity for sedimentation. Recently, coagulants have been recommended for use with slow sand filters, chiefly for temporary use when the water is unusually turbid. The recommendation had been followed in but few instances, as yet, but it was likely to be tried. Already coagulants had been used to hasten the natural deposition of suspended matter in settling reservoirs at water works having no filters. The provision of settling reservoirs, both with and independent of filtration plants, was becoming more common. Double filtration of water is also gaining in favor and use. Generally speaking, the first set of filters to receive the water consist of some coarse material, with high straining efficiency. These are usually known as preliminary or roughing filters, and are more extensively used at Philadelphia than elsewhere. The treatment of water by ozone has been practiced on a relatively small scale at a few European water works plants for some years past, and was adopted at Lindsay, Ont. Several companies were experimenting with the process in the United States. The ozone treatment cannot come into general use until cheaper and less troublesome means of generating ozone have been devised. Lower cost is made all the more necessary by the fact that before the ozone can be applied the organic matter must be removed from the water, or else prohibitively large quantities of the ozone will be consumed in oxidizing the organic compounds and large numbers of bacteria remain unaffected. The processes required to eliminate the organic matter will also reduce the bacteria to such an extent that it hardly pays to go to the expense and trouble of the ozone treatment to effect a further reduction. Instead, it is generally far cheaper and simpler to carry the preliminary or preparatory treatment further and avoid the complication and expense of the high-voltage electric plants required to produce the ozone.

WATER SUPPLY. See **WATER WORKS**; **AQUEDUCTS**; **IRRIGATION**.

WATER WORKS. The enlargement and extension of old works, the addition and improvement of purification plants and measures for the suppression of waste continued in 1908 to be the main features of water-works activity. The examinations and detailed reports of the water-works and other fire protection facilities of the cities of the United States which have been carried on in behalf of the fire insurance interests for some years past are having a salutary effect through analyzing the character and capacity of the several works and pointing out their weak as well as their good features. These reports (by the Committee on Fire Prevention, National Board of Fire Underwriters, 135 William street, New York City) deal with the ownership, organization, source and mode of supply, consumption, pressure, distributing system, valves and hydrants of each water-works examined, besides taking up in like detail the fire department, building department, etc.

Uniform accounts and reports for water-works are given detailed attention in an appendix to a special report of the United States Bureau of the Census published in 1908 ("Statistics of Cities Having a Population of over 30,000: 1908"). The appendix includes a discussion and "tentative classification" of water-works accounts, by Mr. Le Grand Powers, of the Bureau of the Census, and a suggestion for "uniform reports of general and physical data," by M. N. Baker, editor of *Engineering News*. The bulletin just named contains a table of physical and financial statistics of 117 water works owned by cities of 30,000 population and upward in 1906. These works included 24,134 miles of mains, they represented a total capital outlay of \$622,000,000, and a present valuation of \$572,000,000. The outstanding indebtedness on the 117 works was \$281,000,000. The combined gross earnings of the works, including estimates of the value of services rendered the cities, were \$60,000,000, and the gross operating expenses, plus interest on present value, depreciation and an estimated allowance for taxes, were \$55,000,000, showing net earnings of \$5,000,000 (all figures here given in round numbers). It should be understood that few, if any, of the water works of the country make up yearly financial statements on the plan adopted by the Bureau of the Census. The common and very misleading practice is to omit from yearly costs of the water service all interest charges save those on bonds actually outstanding, and also to omit depreciation and taxes (i. e., taxes that would have been paid the city under private ownership. There is also generally omitted from the credit side of municipal water works accounts allowances for fire protection, street and sewer use, city buildings, etc.

Standard specifications for cast-iron water pipe were adopted by the American Water Works Association in 1908. They are largely the same as those adopted by the New England Water Association some years ago. A number of notable railway water supply systems have recently been put into operation, each to supply water stations on many miles of roads. The Indian Creek system for the Pennsylvania Railroad (see *Engineering News*, April 9, 1908) is one of a number of like systems built since 1903 to serve the Pennsylvania Railroad between Philadelphia and Pittsburg, and designed to obviate the water shortages and abnormally high corrosive qualities which have given trouble during recent droughts. The Indian Creek system, for stations near and easterly from Pittsburg, includes a 231,000,000-gallon storage reservoir on that stream, eleven distributing reservoirs with a combined capacity of 49,000,000 gallons, and 135 miles of 36 to 10 inch cast-iron pipe connecting the various reservoirs and water supply stations.

WATSON, THOMAS E. An American politician, candidate of the People's Party for president in 1908. He was born in Columbia County, Georgia, on Sept. 5, 1856, attended Mercer College, Georgia, and was admitted to the bar of that State in 1875. He was a member of the Georgia Legislature from 1882 to 1883, was Democratic elector-at-large in 1888, and a member of Congress (Populist) from 1891 to 1893. As a congressman he was instrumental in securing the first appropriation ever made for the free delivery of mails. In 1896 the People's

Party National Convention nominated him for vice-president. He was also the presidential candidate of the same party in 1904 and in 1908, polling a popular vote of about 117,000 in the former year and of about 90,000 in the latter. He published *Tom Watson's Magazine* in 1905, the publication of which was suspended the following year, when he started *Tom Watson's Jeffersonian Magazine* at Atlanta. He is also the author of *The Story of France* (1898), *Life of Thomas Jefferson* (1900), *Life of Napoleon* (1902), *Life and Times of Thomas Jefferson* (1903), *Bethany, a Study and Story of the Old South* (1904), *Political and Economic Handbooks* (1908), *Waterloo* (1908). See **PRESIDENTIAL CAMPAIGN**.

WEIHAIWEI. A territory on the north coast of the Province of Shantung, China, leased to Great Britain in 1898. Area, 285 square miles; population (1901), 130,792, including 4,000 on the island of Liu Kung. In addition there is a British sphere of influence embracing 1,500 square miles. The native city of Weihaiwei has 2,000 inhabitants. The trade is small. At present the only use of Weihaiwei to Great Britain is as a rendezvous and health resort for the China squadron. The revenue for 1907-8 was estimated at \$71,233 (silver), the expenditure at \$169,528, and the grant in aid at £10,000. The commissioner in 1908 was Sir J. H. S. Lockhart.

WELLESLEY COLLEGE. An institution for the higher education of women at Wellesley, Mass., founded in 1875. In 1908-9 the attendance was 1,283. The college has an endowment of approximately \$1,000,000 and its approximate income is \$500,000. There are 106 officers of instruction and 60,000 volumes in the library. The college has 22 graduate students in residence. A gymnasium and a new dormitory will shortly be added to the buildings of the college. The college offers to graduates a fellowship of \$1,000 per annum and thirty scholarships of \$170 each, and to undergraduates about 50 other scholarships. Work was carried on during the year on the new library, toward which \$125,000 was given by Andrew Carnegie. The president is Miss Caroline Hazard.

WESLEYAN METHODIST CONNECTION IN THE UNITED STATES. An evangelical denomination of Methodist principles, founded in 1843 by members of the Methodist Episcopal Church who strongly opposed slavery. In 1908 the denomination had 19,134 communicants, 600 churches and 524 ministers. In the 499 Sunday schools were enrolled 19,180 scholars and 1,880 teachers. Among the educational institutions controlled by the denomination is Houghton Seminary at Houghton, N. Y. In addition to this, the Educational Board in 1908 authorized the building of a new school of preparatory grade at Miltonvale, Kansas, which is to be ready for use in September, 1909. The Indiana conference also has a school under its own control, but which will soon come under denominational control, and the same may be said of the preparatory school located at Central, S. C. The official paper is the *Wesleyan Methodist*, published at Syracuse, N. Y. The highest authority of the church is the quadrennial General Conference.

WESLEYAN UNIVERSITY. An institution of higher learning at Middletown, Conn.,

founded in 1831. In 1907-8 the attendance was 316 and in the autumn of 1908 it was 320. There are 34 officers of instruction. The university library contains about 78,000 volumes. The endowment is about \$1,500,000 and the annual income is approximately \$200,000. The college has been for several years without a president, but in 1908 Rev. William A. Shanklin, D. D., LL. D., was elected to that office and will be installed at the commencement of 1909.

WESTERN AUSTRALIA. A state of Australia. Area, 975,920 square miles; population at the end of 1906, 261,746. Perth, the capital, had an estimated population of 53,800 on the same date. For details regarding population, education, production, etc., see AUSTRALIA. The executive power is vested in a governor, appointed by the crown and acting through a responsible ministry. The Parliament consists of a Legislative Council of 30 members, elected for six years, and a Legislative Assembly of 50 members, elected for three years. The suffrage for both houses is based upon a property qualification, irrespective of sex. The present governor is Admiral Sir Frederick G. D. Bedford. The premier is Newton James Moore.

On July 20 the government programme was announced by the premier, N. J. Moore. It included the establishment of secondary schools and a university, the building of 400 miles of railway and the amendment of the liquor laws.

WESTERN RESERVE UNIVERSITY. An institution of higher learning at Cleveland, Ohio, founded in 1826. The student enrollment in 1908-9 was 1,016, and the faculty numbered 213. The university includes eight departments: Adelbert College, undergraduate, men; College for Women, undergraduate; Graduate School, Medical School, Dental School, Law School, Literary School and the School of Pharmacy. The university libraries include 93,868 volumes, and the value of grounds and buildings is \$3,400,000. The president is Charles F. Thwing, LL. D.

WEST VIRGINIA. One of the South Atlantic States of the American Union. Its area is 24,170 square miles. The population, according to a Federal estimate made in 1908, was 1,115,606.

MINERAL RESOURCES. In 1907 West Virginia was obliged to yield second place to Illinois in the amount of coal produced, thus making its rank third among the States in production. In spite of this, however, West Virginia's coal production of 1907 showed an increase over the production of 1906 of 4,801,233 short tons in quantity and \$6,794,691 in value. The total amount produced was 48,091,583 short tons, with a spot value of \$47,846,630. The output in 1906 was 43,290,350 short tons, valued at \$41,051,939. The total number of men employed in the coal mines of the State in 1907 was 59,029. In 1907 there were 1,533 machines used in mining, as compared with 1,322 in 1906. There were 729 men killed in the coal mines of West Virginia in 1907, of whom 484 were killed as the result of gas and dust explosions. Most of these perished in the terrible disaster at the Monongah mines of the Fairmount Coal Co. in December. The natural gas output was valued in 1907 at \$16,670,962, as compared with \$13,735,343. Other important mineral products in the State were clay products, building stone, coal products, lime, glass sand,

sand and gravel, salt, and mineral waters; also, unclassified, abrasive materials, bromine, Portland cement, iron ores and zinc. According to figures by the United States Geological Survey, from whose reports the statistics given above are taken, the value of the total mineral production of the State in 1907 was \$92,487,960, as compared with a value in 1906 of \$90,694,588.

Owing to conditions more favorable for the cheap production of coal, the decrease in the output of the State in 1908 was less than that in some other States. It is estimated that the output for 1908 will show a decrease of between 10 and 15 per cent. which will reduce the tonnage to an amount about equal to that of 1906. Most of this decrease is apparent in the northern counties of the State. The report of the State Department of Mines which covered the fiscal year ending June 30, 1908, showed that the production during that period was about 755,000 short tons. There was a decided falling off in the coke-making industry, particularly in the New River Kanawha district, and the prices were unusually low.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 23,962,000 bushels, valued at \$18,451,000, from 768,000 acres; winter wheat, 4,693,000 bushels, valued at \$4,834,000, from 361,000 acres; oats, 1,805,000 bushels, valued at \$1,011,000, from 95,000 acres; rye, 130,000 bushels, valued at \$110,000, from 10,000 acres; buckwheat, 378,000 bushels, valued at \$306,000, from 21,000 acres; potatoes, 2,856,000 bushels, valued at \$2,428,000, from 34,000 acres; hay, 899,000 tons, valued at \$9,889,000, from 620,000 acres; tobacco, 4,650,000 pounds, valued at \$651,000, from 6,200 acres. The farm animals, Jan. 1, 1909, numbered as follows: Horses, 195,100; mules, 12,000; dairy cows, 247,000; other cattle, 538,000; sheep, 709,000; swine, 375,000.

EDUCATION. A commission was appointed in July, 1906, to revise the school laws. The result was the issue of the revised and rearranged laws in 1908. Many progressive steps, educationally, are provided by this law, which of itself is a distinct advance in all that relates to the development of education. There is a slow movement toward the consolidation of schools, but district high schools are being established all over the State. The number of volumes in school libraries increased from 49,966 volumes in 1904 to 176,760 in 1908. A statement of the State superintendent gave the school census in 1908 (ages 6 to 21) as 351,966, of whom about 15,000 were colored. The total enrollment was 205,057 and the average daily attendance 165,103. The high school enrollment (in about 60 high schools) was about 4,150. Teachers numbered 8,262, of whom 3,826 were men, a larger proportion of male teachers than in any other State except Arkansas. The average monthly salary of all teachers in 1908 was \$37.66 for all grades of certificates, and the average length of the school term was 135 days. The total expenditure for school purposes was \$4,271,153, of which almost 80 per cent. was raised by local taxation. By a constitutional limitation of 1902, the permanent school fund cannot exceed \$1,000,000, at which amount it has remained for several years.

FINANCE. The report of the treasurer for the period ending Sept. 30, 1908, shows a balance in the State fund of \$278,989. The receipts dur-

ing the year were \$3,382,131 and the disbursements were \$3,482,317, leaving a balance on hand in this fund on Sept. 30, 1908, of \$178,804. The receipts of the general school fund for the year were \$615,264 and the disbursements, \$762,270, leaving a balance on hand, including the balance on hand Oct. 1, 1907, of \$509,352. The aggregate balance in the treasury on Sept. 30, 1908, was \$691,857 and the grand total of all funds in the treasury and invested was \$1,688,157. The receipts from the Morrill fund for the years 1907-8 were \$65,000 and the disbursements, \$61,000.

CHARITIES AND CORRECTIONS. The following sums were expended during the year for charitable and correctional institutions: West Virginia Asylum, \$74,800; Weston Hospital for Insane, \$170,000; Second Hospital for Insane, \$93,150; West Virginia Reform School, \$57,250; Industrial Home for Girls, \$20,400; West Virginia Colored Institute, \$28,600; Bluefield Colored Institute, \$5,550; West Virginia Colored Orphans' Home, \$4,000; West Virginia School for Deaf and Blind, \$9,133. The total charges for criminals for the year amounted to \$68,530.

POLITICS AND GOVERNMENT. A proposed constitutional amendment to prevent the manufacture and sale of intoxicating liquors, except for scientific and medicinal purposes, in the State passed the House of Representatives by a vote of 67 to 12, but was defeated on Feb. 14 in the Senate by a vote of 19 to 11. A conflict between rival factions of the Republican party in the State attained wider than local interest, and an attempt was made to reconcile the opposing forces by President Roosevelt and other Republican leaders. The regular Republican organization nominated for governor Charles W. Swisher. He had the support of Senator Scott and other prominent State Republicans. An organization known as the Lincoln Republicans refused to accept Mr. Swisher as its candidate, and nominated Arnold Scherr, State Auditor, for governor. The leaders of the party claimed that the troubles in the Republican politics of the State were due to the intermeddling of Federal officeholders. After many ineffectual attempts to reconcile the differences of these factions, a compromise was arrived at, by which W. E. Glasscock was accepted as candidate for governor by both.

CONVENTIONS AND ELECTIONS. The Republican State Convention for the nomination of delegates to the National Convention met on April 27 and instructed the delegates chosen to vote for W. H. Taft for president. On May 28 the Democratic State Convention chose delegates instructed to vote for W. J. Bryan for president. The Democratic State Convention for the nomination of candidates for the State ticket selected, on July 30, Louis Bennett for governor. The events in connection with the Republican nomination for governor are noted in the paragraph above. In the election of Nov. 3 the Republicans carried the State for Taft by a plurality of about 26,000, electing Glasscock governor and the entire State ticket. The detailed vote on the national and State tickets was as follows: Taft, 137,869; Bryan, 111,418; Chafin, 5,139; Debs, 3,670. Glasscock, 130,807; Bennett, 118,909.

OTHER EVENTS. On Jan. 30 nine miners were killed in an explosion in the New River colliery, near Hawks' Nest. The breaking down of a train filled with excursionists, near Pennsboro, on

Aug. 20, resulted in the death of 20 persons and the injury of many more.

STATE OFFICERS. Governor, Wm. E. Glasscock; secretary of state, Stuart F. Reed; treasurer, E. F. Long; auditor, John S. Darst; attorney-general, Wm. G. Conly; superintendent of schools, M. P. Shawsley; adjutant-general, N. S. Burlew—all Republicans.

JUDICIARY. Supreme Court of Appeals: President, George Poffenbarger, Rep.; associate justices, Henry Brannon, Rep.; William N. Miller, Rep.; L. Judson Williams, Rep.; Ira E. Robinson, Rep.; clerk, W. B. Mathews, Rep.

The State Legislature for 1909 is composed of 25 Republicans, 5 Democrats in the Senate; 60 Republicans, 25 Democrats and 1 Prohibitionist in the House. The State representation in Congress will be found in the article UNITED STATES, under the section *Congress*.

WETMORE, GEORGE PEABODY. An American legislator, United States senator (Republican) from Rhode Island. He was born in London, England, on Aug. 2, 1846, graduated at Yale in 1867 and at the Columbia Law School in 1869. He was a presidential elector in 1880 and 1884 and was governor of Rhode Island from 1885 to 1887. In 1889 he was an unsuccessful candidate for United States senator, but was elected to that office for the term 1895-1901 and was reelected for the term 1901-07. On Jan. 21, 1908, he was elected for the third time, his term expiring March 3, 1913.

WHEAT. The winter wheat crop matured a little earlier than usual in 1908 and very perceptibly earlier than in 1907. The crop was harvested on July 1 fully 200 miles farther north than on the same date of 1907. The Hessian fly damaged the crop to some extent in the Southwest, the injury being greater in southern Kansas than in any recent year. Heavy rainfall in June also did some damage, especially west of the Missouri River. June weather conditions were very favorable over the spring wheat area. The *American Agriculturist* estimated the condition of winter wheat on July 1 at 83.2 and that of spring wheat at 96.6. Later in the season the spring wheat crop suffered to some extent from drouth, but the crop on the whole was very satisfactory. The secretary of agriculture estimated the production to be 1.5 per cent. above the 5-year average and the total value at 23.3 per cent. above it. The total yield of winter wheat was 437,908,000 bushels, produced on 30,349,000 acres, and of spring wheat, 226,694,000 bushels, grown on 17,208,000 acres, the total area and production for both spring and winter wheat being 47,557,000 acres and 664,602,000 bushels, respectively. The leading winter wheat States were the following: Kansas, 78,182,000 bushels, on 6,108,000 acres; Indiana, 45,169,000 bushels, on 2,721,000 acres; Nebraska, 40,317,000 bushels, on 2,265,000 acres; Ohio, 33,328,000 bushels, on 2,083,000 acres, and Illinois, 30,212,000 bushels, on 2,324,000 acres. Among the spring wheat States the following led in production: Minnesota, 68,557,000 bushels, on 5,350,000 acres; North Dakota, 68,428,000 bushels, on 5,899,000 acres; South Dakota, 37,862,000 bushels, on 2,958,000 acres, and Washington, 13,050,000 bushels, on 870,000 acres. The world's production of wheat in 1907 was 3,108,526,000 bushels, of which the United States furnished 634,087,000 bushels, European Russia, 455,000,000 bushels; France, 369,970,000 bushels; British India, 315,-

386,006 bushels; Austria-Hungary, 185,059,000 bushels, and Italy, 177,543,000 bushels. The United States produces at present about 50,000,000 bushels of durum wheat annually, about half of which is exported. The spring wheat grown in Minnesota and the Dakotas in 1908 was regarded as the best in quality for the last 15 years.

WHEELOCK, JOSEPH. An American actor, died on Sept. 28, 1908. He received his dramatic training in the old stock company school, which aimed at uniform discipline and coöperation in a theatrical company, rather than at the individual brilliance of the performers. Although he never became a star, he was a competent and versatile performer. His most successful work was done in serio-comic plays at the Madison Square Theatre, New York city, under A. M. Palmer's management. He was one of the founders and the first president of the Actors' Home of America.

WHISKEY. See LIQUORS, FERMENTED AND DISTILLED.

WHITEWAY, Sir WILLIAM VALLANCE. A Newfoundland statesman, once premier and attorney-general of Newfoundland, died on June 24, 1908. He was born at Little Hempston, Totnes, Devonshire, England, on April 1, 1828; was educated at the Totnes Grammar School and was called to the bar in Newfoundland in 1852. In 1862 he became a queen's counsel and three years later was elected to the House of Assembly, serving as speaker of that body until 1869. He was delegate to the convention called at Ottawa to consider the question of confederation with Canada, and from 1873 to 1878 was solicitor-general. In 1877, as counsel for Newfoundland before the Fishery Commission at Halifax, he succeeded in obtaining an award of \$1,000,000 for the colony. He was premier and attorney-general of Newfoundland from 1878 to 1885 and again from 1889 to 1897.

WHITTIER, CHARLES ALBERT. An American merchant and soldier, died on the steamship *Mauretania* en route for Europe on May 14, 1908. He was born in Bangor, Me., in 1840, and graduated at Harvard in 1860. He began to study law, but at the beginning of the civil war joined the volunteer army as a lieutenant. He served throughout the war in the Army of the Potomac and at its close was adjutant-general of the Second Corps. After the war he became a successful merchant in Boston. He was appointed an assistant inspector-general with the rank of lieutenant-colonel of volunteers in 1898 and saw service in Cuba and the Philippines, later becoming a brigadier-general, and resigning in 1900. He was afterward interested in the American-China Development Company and in 1905 he sold the Hankow-Canton Railroad, owned by it, to the Chinese government.

WHYTE, WILLIAM PINKNEY. An American statesman, died in Baltimore on March 17, 1908. He was born in Baltimore on Aug. 9, 1824, was admitted to the bar in 1846 and had a long and successful career as a lawyer, although many years of his life were given to the public service. He was in the Maryland Legislature in 1847-48, comptroller of the treasury of that State in 1853-55, United States senator in 1868-69, governor of Maryland from 1871 to 1874, again United States senator from 1875 to 1881, mayor of Baltimore in 1882-83, attorney-general of Maryland from 1887 to 1891, and in 1906 was

again appointed to the Senate, to succeed Senator Gorman, serving until his death. He was a sympathizer with the South during the Civil War and was always a Democrat in politics. He distinguished himself in his first term in the Senate by his able defense of the administration of Andrew Johnson.

WILDER, ALEXANDER. An American physician and author, died on Sept. 19, 1908. He was born in Verona, N. Y., on May 14, 1823, graduated at Syracuse Medical College in 1850 and practiced in Syracuse. In 1852-53 he did editorial work for Syracuse newspapers, in 1858-71 was similarly employed on the staff of the *New York Evening Post*, and thereafter edited the *Transactions of the National Eclectic Medical Association* (1876-95), and of the *Eclectic Medical Society of New York* (1870-72). He also edited the *Metaphysical Magazine*. His many publications include: *Our Darwinian Cousins* (1873), *Serpent and Siva Worship* (1875), *Vaccination a Fallacy* (1879), *Psychology as a Science* (1884), *Paul and Plato* (1885), *Ethics and Philosophy of the Zoroastrians* (1885), *Egypt and the Egyptian Dynasties* (1899), *Ganglionic Nervous System* (1900), and *Evil* (1907).

WILHELMJ, AUGUST EMIL DANIEL FERDINAND. A German-English violinist and concertmaster, died on Jan. 24, 1908. He was born in Usingen, near Wiesbaden, Germany, on Sept. 2, 1845. While he was yet a mere child he was placed by his father, who was himself an accomplished amateur violinist, under the instruction of Conrad Fischer, *kapellmeister* to the Duke of Nassau, with whom he made such progress that at the age of 9 he appeared at a public concert in Wiesbaden. His father, however, still uncertain as to the genuineness of his son's talents, took him to play before Liszt. The latter received him enthusiastically and obtained his admittance to the Leipzig Conservatory, where he studied under David, Hauptmann and Richter (1861-64). In 1864 he went to Frankfort to study under Raff, and a year later made his first concert tour through Switzerland. In 1866 he toured Holland, and in the latter part of the same year played at the Covent Garden Theatre, London, where he was enthusiastically received. In 1867 he scored equally emphatic successes in Paris and Florence. In 1868 he went to St. Petersburg, where he lived for some time with the composer Berlioz. After an extensive tour throughout Europe (1870-74) he went to England, and remained there until 1876. In this year he journeyed to Bayreuth, where he was principal first violin and *concertmeister* at the first performance of Wagner's "Ring" cycle of music dramas. On his return to England he organized the Wagner Festival at London, in 1877, and induced Wagner himself and Hans Richter, Wagner's conductor at Bayreuth, to be present and to participate in the concerts. He made a triumphal tour through the United States in 1878 and then started on a journey around the world, in the course of which he played in nearly every civilized country on the globe. He returned to Germany in 1886, and settled at Blasewitz, near Dresden. In 1892 he was called to London as head professor of the violin at the Guildhall School of Music. He occupied this post until his death.

WILLIAMS COLLEGE. An institution of higher learning at Williamstown, Mass., founded in 1793. The attendance in November, 1908, was

487, about 50 per cent. being from the State of New York. The endowment of the college is \$1,500,000 and the annual income about \$170,000. Henry A. Garfield, who was elected president in 1907, was installed in this office with impressive ceremonies at the beginning of 1908.

WINDWARD ISLANDS. A group of West India islands. Excluding Barbados (q. v.) and Tobago (see TRINIDAD), they constitute a British colony, subdivided into the colonies of Grenada (q. v.) with Carriacou, St. Lucia (q. v.) and St. Vincent (q. v.) with the minor Grenadines. The seat of government is on Grenada. The principal products are mahogany, cedar and other valuable woods, gums, vanilla, sugar, coffee, cacao, spices, fruits, cotton and rubber. The imports in 1907 amounted to £288,665, the exports to £417,299. There is one governor, but no common legislative council, tariff or treasury. Each division is under an administrator, subordinate to the governor—in 1908, Sir Ralph Ch. Williams. The revenue in 1907-8 was £79,871, expenditure, £68,383, and public debt, £123,670.

WINE. See LIQUORS, FERMENTED AND DISTILLED; FRANCE.

WINTER CHOLERA. A generic term popularly applied to a form of intestinal disorder appearing during the cold season in cities and towns along the shores of the Great Lakes. It is characterized by symptoms varying in intensity from a slight bowel disturbance lasting two or three days to a clinical picture resembling in its severe toxemia and collapse, true Asiatic cholera. Epidemics of the disease occurred in several widely separated localities in 1908. Lansing and Escanaba, Mich., suffered most, but many scattered epidemics were reported from Ohio, Wisconsin and contiguous States. The disease was found on investigation to be due solely to sewage contaminated drinking water, the shallow margin of the lakes serving both as a receptacle for sewage and a source of public water supply. As might be expected, the disease is not due to a specific germ, but is caused by a mixed infection of several intestinal bacteria, those of typhoid and dysentery being found in the dejecta of victims of the disorder. Individual cases take on the characteristics of the predominating infection. The advent of the disease in the winter months is explained by Breitenbach in the *Journal of the American Medical Association* by the absence of the purifying effects of sunlight on these shoal waters, and the stagnation caused by ice formation.

WIRELESS TELEGRAPHY. In the department of wireless telegraphy the ratification by the governments of the world of the Berlin convention of 1906 (the regulations adopted by which came into operation on July 1, 1908) has given a great impetus to the development of wireless stations and the standardization of wireless telegraphy methods. A number of important stations of long range were erected and equipped in various parts of the world; two by the United States government at Nome and Fort Gilbert, Alaska, numerous stations equipped by the Canadian government throughout Canada, a privately owned station on the Caribbean coast giving service to South America, a station in Hawaii communicating directly with San Francisco, a distance of 2,000 miles, and numerous others. The station in Paris, using the Eiffel tower as a mast, is being equipped with

new and powerful apparatus with the expectation of getting into direct communication with New York. Transatlantic communication by the Marconi Company between Glace Bay, Nova Scotia, and Clifden, Ireland, has been carried on with a certain degree of commercial success since the opening of this service in Oct., 1907, but the business done by this company, compared with that which passes over the Atlantic cables, is very small. On his visit to Canada, aboard the *Indomitable*, the Prince of Wales was able to exchange messages constantly with other members of the royal family, on both the outward and the homeward bound voyages, by way of the high power stations at Clifden and at Glace Bay. The strategic value of wireless is, therefore, immense. On the financial side there had grown up a feeling of distrust in new wireless enterprises, and this was confirmed by the failure in 1908 of the Amalgamated Radio Telegraph Company, which had a nominal capital of \$2,250,000.

WIRELESS TELEPHONY. The development in wireless telephony during 1908 was chiefly along the lines previously established. The apparatus employed was considerably improved and the distance of transmission correspondingly increased. For regular service a distance of 50 nautical miles is the maximum that can yet be counted on, although under certain special conditions distances up to 250 miles have been covered. The wireless telephones installed on the Pacific fleet of the United States in 1907 were said to have been a success, and the results of the tests made by the British admiralty in Sept., 1908, were even better than anticipated. Messages were sent, by the De Forest system, from the cruiser *Furious* and the destroyer *Veloce*, out at sea, to the Vernon Torpedo depot in Portsmouth Harbor, a distance of 40 miles, the Hertzian waves having to cross the Isle of Wight to reach Vernon.

WISCONSIN. One of the North Central States of the American Union. Its area is 56,066 square miles. The population according to a Federal estimate made in 1908 was 2,356,874.

MINERAL RESOURCES. According to figures given by the United States Geological Survey, the aggregate value of mineral products in the State fell from \$21,805,775 in 1906 to \$13,832,395 in 1907. The most valuable single products of the State are stone products, which were valued in 1907 at \$2,492,141, an increase over the figures of 1906, which were \$1,871,945. In 1906 the most valuable product was mineral water, which, in 1907, however, fell to \$1,526,703 from a value of \$2,422,694 in 1906. The clay products in the State were valued in 1907 at \$1,127,819, as compared with \$1,227,342. The value of the zinc produced in the State in 1907 was \$1,802,214, a substantial increase over the value in 1906, which was \$1,348,954. The value of the lime produced in 1907 was \$733,996, a decrease over the value of 1906, which was \$769,808. Among other important mineral products of the State are lead, sand and gravel, cement, coke, graphite, metallic paint, pig iron, crystalline quartz, and zinc white.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 49,674,000 bushels, valued at \$30,301,000 from 1,474,000 acres; winter wheat,

1,228,000 bushels, valued at \$1,130,000 from 63,000 acres; spring wheat, 2,100,000 bushels, valued at \$1,932,000 from 120,000 acres; oats, 73,085,000 bushels, valued at \$34,350,000 from 2,350,000 acres; barley, 24,750,000 bushels, valued at \$14,355,000 from 825,000 acres; rye, 5,225,000 bushels, valued at \$3,710,000 from 275,000 acres; buckwheat, 304,000 bushels, valued at \$231,000 from 20,000 acres; flaxseed, 400,000 bushels, valued at \$460,000 from 25,000 acres; potatoes, 20,160,000 bushels, valued at \$12,096,000 from 252,000 acres; hay, 3,988,000 tons, valued at \$31,904,000 from 2,346,000 acres; tobacco, 39,550,000 pounds, valued at \$3,955,000 from 35,000 acres. The production of beet sugar in 1908 was estimated at 20,500 long tons. The numbers of farm animals by thousands on Jan. 1, 1909, were as follows: Horses, 662,000; mules, 5,000; dairy cows, 1,462,000; other cattle, 1,114,000; sheep, 1,044,000; swine, 1,834,000. The wool clipped in 1908 was estimated at 5,312,000 pounds, valued at \$1,063,750.

EDUCATION. The law enacted in 1907 granting special State aid of fifty dollars per year for a period of three years to ungraded rural schools, provided certain requirements in the way of heating and ventilation and other equipments were complied with, has already been taken advantage of by 3,093 out of a total of 6,466 schools. This has contributed greatly to the health and comfort of the children attending such schools and has made the schools more efficient in general. The Legislature of 1907 enacted a law increasing from twelve to twenty the number of county training schools for rural school teachers, which may be established and receive special State aid. The full number of such schools has been established, and, as other counties desire that their teachers should have the advantages of the training which these schools afford, it is not unlikely that the Legislature of 1909 will provide for an increase in their number.

The report of the superintendent of education for the school year ending June 30, 1908, shows the number of children in the State of school age, 775,607; number enrolled in the public schools, 464,771; the average daily attendance, 309,415. The number of teachers in the public schools was 14,659. The total enrollment in the three four-year high schools was 24,287. The average monthly salary of the male teachers under city superintendence was \$113.76; in schools under county superintendence, \$64.27; the average monthly salary of female teachers in schools under city superintendence was \$53.69, and in schools under county superintendence \$40.81. The permanent school fund of the State on June 30, 1908, was \$3,845,529. The school fund apportionment made in Dec., 1908, was \$1,765,281. The total expenditures on graded and ungraded schools during the year was \$10,694,294.

FINANCE. The statement of the State treasurer showed a balance of all funds July 1, 1907, of \$1,279,586.79. The receipts for the fiscal year following, July 1, 1908, were \$10,417,473.49; disbursements from July 1, 1907, to July 1, 1908, were \$9,969,012.49, leaving a balance on hand July 1, 1908, of \$1,728,047.79. The accounts are carried under twenty-nine different funds, of which the general fund, the school fund income, and the funds of the various State educational institutions are the most important.

The different sources of revenue for the general fund are: Railway companies' license funds, 5 per cent.; life and fire insurance company taxes, 10 per cent.; legacy tax, 5 per cent. The school funds income, which is apportioned to counties, is derived mainly from the one mill tax. The total assessed valuation for the fiscal year 1908 was \$2,478,561,786, of which about 75 per cent. was realty. There is no State debt, except \$2,251,000, held in the trust funds for educational purposes.

CHARITIES AND CORRECTIONS. During the last biennial period many improvements were made in the various institutions of the State. A sanitarium for tuberculosis in the incipient form was opened at Wales Nov. 1, 1907, at a cost of approximately \$200,000. In the latter part of 1908 there were about 80 patients. At the Wisconsin Workshop for the Blind in Milwaukee, there were in 1908 nearly 50 blind artisans. The State in 1908 completed three dormitories at the Wisconsin Home for Feeble-Minded, which will give that institution an additional capacity of 300. The cost of this improvement was about \$75,000. A new cell wing was completed at the Wisconsin State Prison, which increases the capacity of that institution about 300, the cost of the improvement being about \$200,000. A Bindery Twine Plant was erected during the year at the State prison, which cost the State about \$250,000. A \$75,000 addition was built at the State Reformatory. About \$50,000 worth of additional buildings were constructed at the School for the Deaf at Delavan, and about \$20,000 worth of buildings at the School for the Blind at Janesville. The insane population of the State on Aug. 30 was 6,205. Of this number there were 4,131 in the county asylums, and 1,892 in hospitals for treatment of the acute insane. The current expenses of the county asylums amounted to \$633,264.69. The population of the State institutions at the close of the fiscal year 1908 was as follows: State Hospital, 608; Northern Hospital, 625; School for the Deaf, 199; School for the Blind, 85; Industrial School for Boys, 364; State Prison, 653; State Public School, 181; Home for Feeble-Minded, 757; State Reformatory, 280; Tuberculosis Sanitarium, 75. The total current expenses of the institutions for that period were \$659,299.02. This amount was exclusive of expenditures for buildings and improvements.

POLITICS AND GOVERNMENT. The chief local political event of the year was the primary election held on Sept. 1. The main issue was the nomination for United States senator for which Senator Isaac Stephenson was a candidate for reelection. He was the successful candidate at the primary, although the nomination was strongly opposed by Senator La Follette, largely through whose efforts the primary law was passed, and who had formerly received the assistance of Mr. Stephenson in bringing about legislation on railroad and other matters, which has made the State notable. The movement for no-license received a setback in the local elections held on April 7, when a majority of the towns voted for license. The question was at issue only in the smaller cities and towns of the State. The Federal nine-hour law, governing the length of time railway telegraphers may work, was declared unconstitutional by Judge Tarrant, at Milwaukee, on April 14, while at the same time he decided the State eight-hour law valid. The decision is based on the ground

that the Federal government exceeds its authority when it attempts to regulate intra-State commerce. Suit was brought on Jan. 13 against the Chicago, Milwaukee and St. Paul railroad for knowingly violating the eight-hour employee law, which went into effect on Jan. 1. The suit is a test case and will be carried through the courts as rapidly as possible. On Nov. 1, the first conviction was obtained under the anti-tipping law, passed in 1905. In January, twenty-three foreign life insurance companies left the State as the result of legislation passed in 1907.

CONVENTIONS AND ELECTIONS. The Republican State convention for the selection of delegates to the national convention chose delegates instructed to vote for W. H. Taft for President. The Democrats on Feb. 14 chose delegates to the national convention instructed to vote for W. J. Bryan. The results of the local election held on April 7 are indicated in the paragraph above. In the primary elections described in the preceding paragraph candidates for governor were also nominated. Gov. J. O. Davidson received the Republican nomination and John A. Aylward the Democratic. In the elections of Nov. 3 the Republicans carried the State for Taft by a plurality of about 75,000, electing the entire State ticket. The detailed vote on national and State tickets was as follows: Taft, 247,747; Bryan, 166,632; Chafin, 11,564; Debs, 28,164. Davidson, 242,935; Aylward, 165,977.

OTHER EVENTS. The severest drought in the State in many years was accompanied in September and October by disastrous forest fires, which caused the loss of several lives and the destruction of property valued at millions of dollars.

STATE OFFICERS. Governor, J. O. Davidson; lieutenant-governor, John Strange; secretary of state, James A. Frear; treasurer, Andrew H. Dahl; adjutant-general, C. R. Boardman; attorney-general, Frank L. Gilbert; State superintendent of schools, C. P. Cary; commissioner of insurance, Geo. E. Beedle—all Republicans.

JUDICIARY. Supreme Court: Chief justice, John B. Winslow, Dem.; associate justices, Wm. H. Timlin, Rep.; R. G. Siebecker, Rep.; J. E. Dodge, Dem.; Roujet D. Marshall, Rep.; John Barnes, Dem.; J. C. Kerwin, Rep.; clerk, Clarence Kellogg, Rep.

The State Legislature of 1909 is composed of 28 Republicans, 4 Democrats, and 1 Social Democrat in the Senate, 80 Republicans, 17 Democrats, and 3 Social Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section Congress.

WISCONSIN, UNIVERSITY OF. An institution of higher learning at Madison, founded in 1848. The attendance in 1907-8 was 4,013; for 1908-9 over 4,500. The enrollment in the former year was distributed as follows: College of letters and science, 1,760; college of engineering, 921; college of agriculture, 694; graduate school, 443; college of law, 157; school of music, 150; course in pharmacy, 32; college of medicine, 25. In addition to this number the correspondence course registration was over 1,400. The summer session of 1908 had 1,027 students, including those in the graduate school, college of letters and science, engineering, agriculture, law and medicine. There were 395 offices of instruction. The income of the university is over \$1,100,000,

practically all of which is received from the State and from the United States government. The Legislature has recently provided \$300,000 annually for the construction of new buildings. The building for animal husbandry and the woman's gymnasium and clubhouse were completed in 1908. By the will of William F. Vilas, of the class of '58, the university will receive an endowment of over \$2,000,000 for a memorial theatre, for research professorships and for graduate fellowships. New chairs were established in mining, engineering, and in pathology, pharmacology and toxicology in 1908. New courses have recently been added in chemistry, agricultural training of teachers, and journalism. The work in medicine has been extended to include the first two years of a standard medical college course. In 1907-8 566 degrees were granted of which 22 were the degree of Ph.D. and 83 were the Master's degree. The president is C. R. van Hise.

WISTER, ANNIS LEE (FURNESS). An American writer known for her translations from the German, died on Nov. 15, 1908. She was born in Philadelphia in 1830. In 1864 she began publishing her translations of well-known German novels. Chief among many books that she translated are: *Old Mam'selle's Secret* (1868); *The Second Wife* (1874); *Violetta* (1886); and *The Owl's Nest* (1888). In 1888 she published a complete edition of her translations in 30 volumes. She also published (in collaboration with Dr. F. H. Hedge) *Metrical Translations and Poems* (1888).

WOMAN'S CHRISTIAN TEMPERANCE UNION, NATIONAL. An organization for the promotion of temperance and for kindred purposes, organized in Nov., 1874, at Cleveland, Ohio. It had in 1908 about 10,000 local unions with a membership, including children's societies, of over 600,000. Forty distinct departments of work (under six divisions, I, Organization; II, Preventive; III, Education; IV, Evangelistic; V, Social, and VI, Legal), presided over by as many women experts, are conducted by the organization, which claims that largely through its influence, every State in the Union has on its statute books laws requiring the study of scientific temperance in the public schools. The organization has also secured many laws prohibiting the sale of tobacco to minors; raising the age of consent; providing for the better protection of women and girls; the appointment of police matrons; the establishment of industrial homes for girls and of houses of refuge for erring women, and has done various other legislative work of an important and elevating character. It publishes two papers, *The Union Signal*, a weekly journal of the temperance reform, and *The Crusader Monthly*, for young people. President, Mrs. Lillian M. N. Stevens, Portland, Maine; vice-president-at-large, Miss Anna A. Gordon, Evanston, Ill.; corresponding secretary, Mrs. Frances Pride Parks, Evanston, Ill.; recording secretary, Mrs. Elizabeth Preston Anderson, Valley City, N. D.; assistant recording secretary, Mrs. Sarah H. Hoge, Lincoln, Va.; treasurer, Mrs. Elizabeth P. Hutchinson, Evanston, Ill.

WOMAN'S COLLEGE OF BALTIMORE. An institution for the higher education of women at Baltimore, founded in 1888. The college has only one course of study leading to the one degree of Bachelor of Arts. Much of its curric-

ulum is required. The attendance in 1908 was 341 students, with 28 teachers. Dr. John Franklin Goucher resigned as president in Nov., 1907, after twenty years of successful administration. Rev. Eugene Allen Noble was chosen to succeed him. The plant of the college is valued at \$1,400,000; its endowment is estimated at \$700,000 and its expenditures at \$70,000.

WOMAN SUFFRAGE. Like its predecessor the year 1908 was a notable one in woman suffrage annals. While the record for 1908 discloses fewer practical successes, it shows an aggressive agitation attracting world-wide attention. In England, the United States, France, Holland, Denmark, Scandinavia, Switzerland, Bulgaria, South Africa, Victoria and even in Japan and Turkey, the extremes of Asia, the woman's movement compelled attention. England was the chief storm centre. There the movement is carried on mainly by the National Union of Suffrage Societies and the Woman's Political and Social Union, representing respectively the conservative and the radical elements. The Women's Freedom League also represents a radical element. The members of the radical groups, commonly called "suffragettes," a name first given in derision but adopted by the agitators themselves, continued the aggressive and militant policy begun in 1907, and even many conservatives joined in. They organized street parades and monster demonstrations; they attempted to "rush" the House of Commons; they displayed everywhere large signs bearing their battle cry, "Votes for women"; and they continually "pestered" members of the government on public occasions by means both legal and illegal. On June 13 occurred in London a parade of fully 10,000 women, followed by a meeting in Albert Hall, where several notable speeches were made. On June 21 a huge demonstration was made in Hyde Park. This was said to have been the largest political demonstration ever held. Women came to London on more than thirty special trains and reached the park in seven different processions. Resolutions were passed and a copy was delivered by Miss Christabel Pankhurst to Premier Asquith. Another great demonstration was that of June 30, when tens of thousands of persons packed themselves into Parliament Square and neighboring streets while the House of Commons was in session. Several thousand special and mounted police were required during several hours to maintain order. Again on Oct. 13 Parliament was rushed by a crowd numbering fully 50,000. As a result of this outbreak Mrs. Pankhurst and other leaders were arrested and sentenced to three months' imprisonment, they having refused to give bond to keep the peace. A special feature of the year's agitation in England was the activity of the women in by-elections. They claimed to be instrumental in the defeat of at least fifteen of the government's candidates. As one instance among many of the methods adopted to force themselves on public attention may be cited the interruption and final defeat of an attempt by Mr. Winston Churchill to make a speech at Dundee. His opponent was a daring suffragette armed with a large bell. Still more notorious was the incident of Nov. 8, when two suffragettes chained themselves to the lattice work in front of the women's gallery in the House of Commons and began shrilly to demand votes for women. They were released only

by tearing away part of the lattice and filing their chains. The disorder resulting from these tactics led to many arrests, and more than two score of the leaders were sentenced to jail. A more or less organized anti-suffrage movement developed during the year. This was led by the novelist, Mrs. Humphry Ward, and founded its basis in the contention that the majority of women, and particularly those of the more intellectual classes, do not desire the suffrage. Tending to offset the force of this contention was the success attending the organization and development of suffrage sentiment among the women workers in the mills of Lancashire and Cheshire. A considerable number of working women's societies having both industrial and political purposes, were affiliated with the National Union of Suffrage Societies. Their appeal was made mainly to working men and rested on the plea that industrial rights and the improvement of industrial conditions can be secured only by the use of political power. The chances of success in England were apparently greatly reduced by the accession of Mr. Asquith, an avowed opponent, to the premiership, in succession to Mr. Campbell-Bannerman. Under the lead of the latter the House of Commons on Feb. 28 voted in favor of a woman suffrage bill by 271 to 92 on its second reading. The government, however, steadily refused to allow the bill to reach a final reading. The new premier has consented to favor a woman suffrage measure provided that it be sufficiently democratic and that an overwhelming majority of women be shown to desire the ballot.

In March and April the methods of the English suffragettes were communicated to the United States through a visit of Mrs. Borrmann Wells and other English agitators. They organized the Progressive Woman Suffrage Union in New York city. Frankly sensational methods of compelling attention, such as street parades and open air meetings on street corners, were adopted. Preceding the visit of the English suffragettes the Interurban Suffrage Club of New York city had held a series of public meetings including a legislative hearing at Albany (Feb. 19) and a big rally at Cooper Union (Feb. 27). Late in May and early in June a group of suffragists led by Mrs. Harriet Stanton Blatch traveled by trolley up the Hudson valley holding open air meetings. The most notable of these was held at Poughkeepsie near Vassar College. In June a proposed amendment to the Oregon constitution granting equal suffrage to women was defeated by a large majority in the referendum vote. The most effective argument used against the proposal was that the majority of women did not care for the ballot. The leaders at once began a new campaign and in September filed an initiative petition which will bring the matter before the voters again in 1910.

In July the Iowa Supreme Court sustained the right of women of that State under a law of 1894 to vote on questions of taxation. The new constitution of Michigan, ratified in November, gives taxpaying women the right to vote on questions involving the expenditure of public funds. Efforts to secure the adoption of suffrage planks by the national conventions of the Republican and Democratic parties were unsuccessful. The agitation of the subject along suffragette lines was revived early in December, through the coöperation of English and Ameri-

can leaders. Notable suffragist and anti-suffragist meetings were held in New York city on Dec. 4. The anti-suffragist meeting, held under the auspices of the National League for the Civil Federation of Women, was addressed by Rev. Dr. Lyman Abbott, and heard letters from President Roosevelt and Elihu Root. This meeting was invaded by a few suffragettes who succeeded in creating considerable disturbance. The other meeting, held at Carnegie Hall, was probably the largest demonstration ever held in this country in the interest of woman suffrage. Addresses were made by Mrs. Philip Snowden, an English leader of the movement, and by New York clergymen.

The immediate result of the year's agitation in the United States has been to arouse widespread interest in the question and to secure expressions of opinion from many, in positions of power. While the agitation has centred at New York city, the suffragists claim to have made progress in California, Oklahoma, Wisconsin, Georgia, Louisiana, South Dakota, Indiana and Washington. At the meeting of the National Woman Suffrage Convention at Buffalo in October a National Council of College Equal Suffrage Leagues was formed, as a result of interest among college women.

The International Woman Suffrage Alliance meets in the United States in 1909. The 1908 congress of this alliance was held at Amsterdam, Holland, in July. Delegates to this congress came from Sweden, Germany, Austria, Hungary, Russia, Bohemia, Bulgaria, Italy, Switzerland, Belgium, Great Britain, United States and South Africa, and Australia, Norway and Denmark, those from these last three countries being officials. All delegations reported progress toward the achievement of political equality. The overthrow of the liberal government early in the year had carried with it the proposal of the liberals to enlarge the franchise by constitutional revision so as to include men and women on equal terms.

This defeat of a bright prospect in Holland was partially offset by the granting of the municipal suffrage to women on the same terms as that exercised by men by the Danish parliament. This stimulated the woman suffragists of Denmark to active agitation for the parliamentary suffrage. A national association with 8,000 members was formed and on the last Sunday in July forty meetings were held in different cities to discuss the issue. France seems not to have experienced an organized campaign of agitation, but nevertheless had the question brought forward in a practical manner through the candidacy of Mlle. Jeanne Laloë for election to the Municipal Council of Paris on the Socialist ticket. She was hailed as the first French suffragette and her candidacy fell little short of success. The legality of her candidacy was disputed but settled temporarily in her favor. The large vote she received, taken in connection with socialist favor for female suffrage and with the strength of socialism in France, points strongly toward practical success in that country. In Norway the council has proposed a modification of the law of 1907 whereby 300,000 women received the full franchise, so as to grant suffrage to women on equal terms with men. In Finland twenty-five women sat in Parliament as against nineteen in 1907. In November Victoria, Australia, granted women the right to

vote for members of the State parliament. Women thus possess right in all Australia to vote for members of State and national parliaments.

WOMEN IN INDUSTRY. One of the most important court decisions of the year affecting labor was the decision of the Supreme Court of the United States in the case of *Muller vs. State of Oregon*. Muller, the proprietor of a laundry in Portland, Ore., was convicted of employing adult women more than ten hours per day, thus violating a State law of 1903 forbidding the employment of adult women for more than a ten-hour day in factories, mechanical establishments, and laundries. This law being upheld as constitutional by the Oregon Supreme Court in 1906, Muller appealed his case to the United States Supreme Court. This court affirmed the constitutionality of the law. While this case dealt with the employment of women in laundries, it was nevertheless considered by the friends of the protection of female workers, as a test case of the power of States to limit the freedom of contract of adult women. Mr. Louis D. Brandeis, of Boston, donated his services and in cooperation with Miss Josephine Goldmark of the National Consumers' League, submitted a most comprehensive and telling brief. The unusual character of this brief consisted in the fact that it was devoted not only to the legal aspects of the case, but to the physical, moral and economic effects of long hours for women workers. This brief furnished the basis and tenor of the court's decision, handed down Feb. 28. On the broad ground of the difference in the physical constitution and functions of women as compared with men, the court held the State justified in exercising its police power in special legislation with reference to the conditions under which she works. Justice Brewer, for the court, said: "As healthy mothers are essential to vigorous offspring, the physical well-being of woman becomes an object of public interest and care, in order to preserve the strength and vigor of the race." Being based on such broad grounds the decision lays a solid basis for the constitutionality of State laws in general, limiting the hours of women's work to such as shall certainly be no menace to health. The great importance of this decision is apparent when it is known that twenty States now have statutes similar to the Oregon law, but much doubt has existed as to their constitutionality.

The efforts of the National Trade Union League to arouse a feeling of solidarity and of community of interests among working women met with considerable success during 1908. The league is stimulating the formation of unions among women workers in the industrial centres of the United States. New organizations were formed in 1908 at Detroit, Milwaukee and St. Louis. In the fall three days' sessions of the league were held at Chicago and New York and a shorter one at Boston. At Chicago 77 delegates were present, 55 from Chicago and the others from 21 cities in ten different States. At New York 75 delegates were present representing cities in Connecticut, New York, New Jersey, Delaware and Pennsylvania. At Boston delegates from Fall River, Brockton and other centres assembled for one afternoon's discussions. It is believed that these meetings will not only bring about a sympathetic feeling among women workers which will make possible common action, but will also discover and



MRS. DRUMMOND MRS. PETHWICK LAWRENCE MRS. TUKE MISS CHRISTABEL PANKHURST
MRS. PANKHURST
 Officials of the Women's Social and Political Union at Clement's Inn
 SUFFRAGIST LEADERS MAKING PLANS FOR "RUSHING THE HOUSE OF COMMONS"



A SUFFRAGETTE, WHO HAD CHAINED HERSELF TO THE RAILING, BEING REMOVED BY THE POLICE
 THE WOMAN SUFFRAGE CAMPAIGN IN ENGLAND

develop the leadership existing in the ranks of working women. The Massachusetts Legislature reduced the number of legal hours for women's work from 58 to 56 per week, except in seasonal trade, when the average for the year must not exceed 56 hours per week.

SPAIN. A decree issued in March for the first time introduced in Spanish law a limitation on the employment of women in certain harmful industries. The law applies to all children under sixteen and to all women under twenty-five years of age. Among the places prohibited to these workers are chemical works, match factories, type foundries, glass and lead works, and slaughter houses. This new law taken in connection with recently promulgated decrees prohibiting the night work of children under fourteen and limiting the hours of children between ten and fourteen years of age to six hours a day in mills and factories and to eight hours in shops and offices, gives Spain a high rank in the present movement for the protection of women and children in industry. See **CHILD LABOR**.

WOMEN'S CLUBS, GENERAL FEDERATION OF. A body organized in 1892. It is composed of more than 4,500 women's clubs, having a membership in the United States and foreign countries of about 800,000. Clubs applying for membership must contain no sectarian or political test in their constitution, the object of the federation being social, literary, artistic, or scientific culture. The officers in 1908 were as follows: President, Mrs. Philip M. Moore; first vice-president, Mrs. Josiah M. Cowles; second vice-president, Mrs. John Dickinson Sherman; recording secretary, Mrs. Henry H. Dawson; corresponding secretary, Mrs. Frank M. Shiek; treasurer, Mrs. George O. Welch; auditor, Mrs. L. L. Blankenburg.

WOOL. See **STOCK RAISING**, section *Sheep*.

WORMELEY, KATHERINE PRESCOTT. An American author and translator, died on Aug. 4, 1908. She was born of American parents at Ipswich, England, in 1829, and came to the United States at an early age. During the Civil War she was connected with the United States Sanitary Commission, served as nurse on board the Federal hospital transports, and became superintendent of nursing at the Lovell Hospital in Portsmouth Grove, R. I. She published a history of the United States in 1863. At the close of the rebellion she published an account of her war-time experiences under the title *The Other Side of the War*. Another volume on the same subject, *The Cruel Side of War*, appeared in 1899. She became well known for her translations from the French, which include an edition of Molière's plays (1892), and the famous *Works of Honoré de Balzac* (40 vols., 1883-97), which is the standard English translation of that author.

WORTHINGTON, GEORGE. Second Protestant Episcopal bishop of Nebraska, died on Jan. 7, 1908. He was born in Lenox, Mass., on Oct. 14, 1840. After a brief business career he graduated at Hobart College in 1860, and at the General Theological Seminary in 1863. In 1864 he was ordained priest. After serving various rectorships in New York he went to Detroit in 1868, where he remained until 1875. In 1884 he was offered the bishopric of Nebraska, but declined. In 1885, however, on being again offered this office, he accepted it. In 1901 ill health compelled his removal to New York

city, although he still retained the administration of his Nebraska diocese. From this date until his death he also had charge of the Protestant Episcopal churches of Continental Europe.

WRESTLING. The national championships of the Amateur Athletic Union were decided at Madison Square Garden Concert Hall on April 13. The events and winners follow: 105 pounds, R. Schwartz, Boys' Club, New York; 115 pounds, G. Mehnert, Turn Verein, Newark; 125 pounds, L. A. Dole, Yale University; 135 pounds, G. S. Dole, Yale; 145 pounds, M. Weily, German-American A. C.; 158 pounds, C. Anderson, Swedish Gymnasium, Boston; heavyweight, J. Gunderson, Dover Sporting Club, New York. In the professional wrestling world there were two important bouts. George Hackenschmidt defeated Joe Rogers in two falls, and Frank Gotch won the heavyweight championship from Hackenschmidt, when the latter refused to continue after an hour and forty-five minutes had elapsed without either scoring a fall. The fourth annual intercollegiate championships were won by Yale with a total score of 10 points. Pennsylvania scored 6, Princeton and Cornell 3 each, and Columbia 0. Events and winners were: 115 pounds, Yerger, of Pennsylvania; 125 pounds, L. A. Dole, of Yale; 135 pounds, G. S. Dole, of Yale; 145 pounds, Waite, of Pennsylvania; 158 pounds, Parker, of Yale; 175 pounds, Foster, of Yale; heavyweight, Talbot, of Cornell. See **OLYMPIC GAMES**.

WRIGHT, JOHN HENRY. An American archaeologist, died on Nov. 25, 1908. He was born at Urumya, Persia, on Feb. 4, 1852, graduated at Dartmouth in 1873, and later studied at Leipzig. In 1878 he became associate professor of Greek at Dartmouth. During 1886-7 he was professor of classical philosophy at Johns Hopkins. In the latter year he was appointed professor of Greek at Harvard, and became dean of the graduate school in 1895. During 1906-7 he was president of the American School of Classical Studies at Athens. He edited the *American Journal of Archaeology* from 1897 to 1906 and was also editor of *A History of All Nations* (24 vols., 1902).

WRIGHT, LUKE E. An American diplomat, and secretary of war. He was born in Tennessee in 1847. He studied law and began practice in Memphis, Tenn. For eight years he was State attorney-general. He was a Democrat in political belief, but declined to support Bryan in 1896, and allied himself with the "gold" wing of the Democratic party. From 1900 to 1904 he was a member of the United States Philippine Commission, serving as president from 1903 to 1904, when he became civil governor, succeeding William H. Taft. Later he was appointed governor-general, which position he held until 1906. He was ambassador to Japan from 1906 to 1907, and on July 1, 1908, took the war portfolio in President Roosevelt's cabinet. In 1903 he received the degree of LL.D. from Hamilton College.

WRIGHT, ORVILLE and WILBUR. American inventors and aeronauts. Both in Europe and the United States, they were the most important figures in the aeronautical developments of the year. Their heavier-than-air machine were successfully tested in 1908. Orville was born in Dayton, Ohio, on Aug. 19, 1871, a son of Bishop Milton Wright of the church of United Breth-

ren in Christ, and had a public school education. Wilbur was born near Millville, Ind., on April 16, 1867, and also was educated in the public schools. They began to study aviation in about 1896, at which time they had in Dayton a small shop in which they repaired and built bicycles, and four years afterward were making actual experiments with machines of their own invention and manufacture. By 1903 they had produced a machine in which they could remain in the air a minute at a time; and by 1905 they had so improved their machine that they could rise or descend practically at will, describe curves, and remain in the air for several minutes. In 1906 they built several machines, and in May, 1908, they conducted a number of public experiments at Kill Devil Hill, N. C. For their subsequent remarkable performances, and a description of their machines, see AERONAUTICS.

WÜLLNER, ADOLF. A German physicist, died in Oct., 1908. He was born in Düsseldorf on June 13, 1835, studied physics at Bonn, Munich and Berlin, and after teaching at Marburg, Aix-la-Chapelle and Bonn, became professor in the technical school at Aix. He made special investigations of the specific heat of liquids and gases; of vapor tension, refraction indices and the variability of absorption and emission spectra. His publications include: *Lehrbuch der Experimentalphysik* (1862, 6th ed., with Hagenbach, 1907); *Einleitung in die Dioptrik des Auges* (1866), and *Kompendium der Physik* (2 vols., 1879).

WYCKOFF, WALTER AUGUSTUS. An American sociologist, died on May 15, 1908. He was born in Mainduri, India, on April 12, 1865, graduated at Princeton in 1888, and for a year studied and traveled in Europe. In July, 1891, he traveled on foot across the American continent, starting without any money and determined to make his living as a day laborer. In this way he spent eighteen months working as a farm hand, on railroads, as a hotel porter, as a lumberman, and in many other occupations of the daily wage-earner. The results were incorporated in the books, *The Workers—East* (1897), and *The Workers—West* (1898), wherein he reveals a breadth of understanding unequalled in the whole literature of sociological vagabondry of which his books were the pioneers. In 1893 and 1894 Mr. Wyckoff was employed as a private tutor, and traveled twice around the world. He was appointed social science fellow at Princeton in 1884, lecturer on sociology there in 1895, and assistant professor of political economy in 1898. In further description of his experiences during his trip across the continent, he published *A Day With a Tramp, and Other Days* (1900).

WYOMING. One of the Western States of the American Union. Its area is 97,914 square miles. The population in 1908, according to Federal estimate, was 107,387.

MINERAL RESOURCES. The aggregate value of the mineral products of the State in 1907, according to figures given by the United States Geological Survey, was \$10,671,574, which was a considerable increase over the value of the production in 1906, which was \$9,063,849. In addition, there were miscellaneous products including antimony, copper, lead, lime, lithia minerals, natural gas, pearls, pottery and stone to the value of \$1,743,304. The production of coal

in Wyoming exceeded that of any preceding year. The figures for 1907 were 6,252,990 short tons, with a spot value of \$9,372,668, which is a gain over the output of 1906 of 118,996 short tons. The gain in production, however, was insignificant when compared with the gain in value. The product of 1906 was valued at \$8,013,528, while that of 1907 was \$9,732,668, a gain of over 21 per cent. The coal mines of the State gave employment in 1907 to 6,645 men, as compared with 5,934 men in 1906. The production of copper showed a remarkable increase in 1907 over 1906. In the former year, 3,026,004 pounds valued at \$605,201 were produced, as compared with 106,177 pounds, valued at \$20,492 in 1906. The production in 1905 was 2,530,531 pounds, and the falling off in 1906 was due to local causes. The other mineral products of the State are relatively unimportant. They include clay products, gold, gypsum, lime, silver, stone, and precious stones. The Director of the Mint estimated the output of gold for 1908 as probably equal to or slightly exceeding that of 1907, which was \$9,400. It was estimated that the coal production of the State in 1908 did not exceed 60 per cent. of that of 1907. This decrease resulted from financial conditions, and from an oversupply of fuel mined during the summer and fall of 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in 1908, according to figures of the United States Department of Agriculture, were as follows: Corn, 84,000 bushels, valued at \$64,000 from 3,000 acres; spring wheat, 1,275,000 bushels, valued at \$1,084,000 from 50,000 acres; oats, 2,839,000 bushels, valued at \$1,420,000 from 78,000 acres; barley, 140,000 bushels, valued at \$91,000 from 4,000 acres; rye, 22,000 bushels, valued at \$16,000 from 1,000 acres; potatoes, 948,000 bushels, valued at \$628,000 from 6,000 acres; hay, 504,000 tons, valued at \$3,730,000 from 252,000 acres. The number of farm animals, Jan. 1, 1909, was as follows: Horses, 135,000; sheep, 6,591,000; cattle, 900,000; swine, 19,000. Wyoming ranks first in the number of sheep. The wool clipped in 1908 was 36,000,000 pounds valued at \$5,644,800.

EDUCATION. The compulsory education law, passed at the session of the Legislature of 1907, had a good effect on the attendance of pupils in the schools of the State. In 1907 there were in the State 26,794 pupils of school age (6 to 21 years), and in 1908 there were 28,769 pupils of school age. In 1907 there were enrolled in the schools 19,795 pupils and in 1908 21,390. There were in the State in 1907 787 teachers, and in 1908, 899. The average number of days of attendance of pupils in 1907 was 91, and in 1908 this was increased to 99. The number of women teachers as compared with men teachers is on the increase. Of the total number of 899, there were but 115 men teachers in 1908. There was a marked increase in the salaries paid to men and women in 1907. The average salaries paid to men amounted to \$74.14 and was in 1908 \$85.26. For women the average salary paid in 1907 was \$49.50 and in 1908 it was \$53.05. The average for both sexes was \$69.15, making an increase of \$7.33 in the average monthly salary in one year. The total amount expended for school purposes during the school year 1907-8 amounted to \$584,970.03.

FINANCE. A statement of the State treasurer gave the balance on hand Oct. 1, 1907, as \$243,-

506.79; the receipts for the fiscal year following were \$881,716.29, and investments repaid \$99,446.36; the expenditures were \$697,199.87 and the investments for permanent funds, \$182,448.80, leaving a balance on Sept. 30, 1908, of \$353,419.50. The bonded debt Oct. 1, 1908, was \$182,000.

CHARITIES AND CORRECTIONS. At the close of the biennium, ending Sept. 30, 1908, the population of the State institutions was as follows: Hospital for Insane, Evanston, 140; General Hospital, Rock Springs, 31; General Hospital, Sheridan, 27; Soldiers' and Sailors' Home, Buffalo, 45; and the State Penitentiary, Rawlins, 257, of whom five were United States prisoners. The State also maintains the Big Horn Hot Springs Reserve at Thermopolis. Delinquent boys and girls are sent to industrial schools at Golden and Denver, Col., and the State deaf and blind are sent to schools in neighboring States. The delinquent in 1908 numbered 11 boys and 3 girls, the deaf 12, and the blind 2. The total expenses for charities and corrections during the biennium aggregated \$349,239.33.

CONVENTIONS AND ELECTIONS. The Republican State convention on May 7 elected delegates to the national convention instructed to vote for W. H. Taft for President, and on May 14 similar action was taken by the Democrats in regard to W. J. Bryan. There was no election for State offices in 1908. In the election of Nov. 3, the Republicans carried the State for Taft by a plurality of about 5,000. The detailed vote was as follows: Taft, 20,846; Bryan, 14,918; Debs, 1,715. F. W. Mondell was reelected a member of the House of Representatives.

OTHER EVENTS. By an explosion in Mine No. 1 of the Union Pacific Coal Mine at Hanna on March 28 over sixty miners were killed. The State gained several thousand population during the year, chiefly among farmers from the Mississippi Valley and adjoining States west; who made homestead entries with a view to applying by farming methods in semi-arid districts. There was a considerable amount of railroad building in 1908.

STATE OFFICERS. Governor, B. B. Brooks; secretary of state, Wm. R. Schnitger; treasurer, Edward Gillitte; auditor, Leroy Grant; adjutant-general, P. A. Gatchell; attorney-general, W. E. Mullen; superintendent of education, A. D. Cook—all Republicans.

JUDICIARY. Supreme Court: Chief justice, Chas. N. Potter; associate justices, Cyrus L. Beard, Richard A. Scott; clerk, W. H. Kelly—all Republicans.

The State Legislature of 1909 is composed of 21 Republicans and 2 Democrats in the Senate, 45 Republicans and 5 Democrats in the House. The State representation in Congress will be found in the article UNITED STATES under the section Congress.

X-RAYS. See PHYSICS AND CANCER.

YACHTING AND MOTOR BOATING. The yachting and motor boating season of 1908, although somewhat affected by the financial depression, was nevertheless a most successful one, when the number of boats built and races run is considered. There were six ocean races, three for sailing yachts and three for power boats. These comprised two from Marblehead to Bermuda, two to Fire Island Lightship and return, the Lipton cup race to Cape May and return, and one from Marblehead to New Ro-

chelle. The Bermuda race, 675 miles, was won in Class B by H. Morss's schooner *Dervish*, and in Class C by E. J. Bliss's sloop *Venona*, the winners' time being respectively 109h. 23m. 45s. and 100h. 16m. The Bermuda race for power boats was won by J. Craig's *Alisa Craig* in 66h. 32m. 30s. The Fire Island Lightship race (93 miles) for sail boats was won by the yawl *Sakana*, owned by the Haviland brothers, in 20h. 2m. 9s. The Fire Island race for 50-foot power boats was won by J. H. Hadley's schooner, the *Alabama*, in 6h. 49m. 30s. F. Thompson's schooner, the *Shamrock*, won the Lipton cup race to Cape May and return (225 miles) in 54h. 57m. 30s. The Marblehead to New Rochelle race (270 miles) for power boats was won by S. W. Granbery's *Irene II* in 32h. 33m. The trans-Pacific race from San Pedro to Honolulu (2,500 miles) was won by the schooner *Lurline* of the South Coast Yacht Club, California, in 13d. 21h. 31m. 43s. Two international contests were held, the international dory race, held under the auspices of the Amsterdam Yacht Club, Holland, which was won by the *Tautog*, owned by G. G. Fry, of the American Yacht Club, and the international motor boat race at Huntington, L. I., won by E. J. Schroeder's *Dixie II*. *Dixie II* also won the American Power Boat Association's Gold Challenge cup, the International Championship cup, and the special mile championship. A remarkable feature of the motor boating season was the increase in speed gained. The best record up to 1908 was between 25 and 26 nautical miles an hour. This was advanced in 1908 to over 31 nautical miles an hour.

YALE UNIVERSITY. An institution of higher learning at New Haven, Conn., founded in 1701. The attendance in all departments in the year 1907-8 was 3,306, divided as follows: Graduate department, 360; academic, 1,351; Sheffield Scientific, 895; theological school, 65; law school, 294; medical school, 154; art school, 41; school of music, 87; school of forestry, 59. During the year there were two losses among the faculty from death, in the academic department, Professor Thomas D. Seymour, who died on Dec. 31, 1907, and Professor Edward Gaylord Bourne, who died on Feb. 24, 1908. Professor Seymour was Hillhouse professor of Greek, and Professor Bourne was professor of American history. Dr. Joseph Barrel was appointed professor of structural geology and Professor Max Farrand of Leland Stanford, Jr., University, was appointed professor of American history. Two members of the faculty retired during the academic year, Professor Tracy Peck of the academic department, and Professor John H. Niemeyer of the art school. The place left vacant by Professor Peck will be taken by Professor George Lincoln Hendrickson, of Chicago. A directory of living graduates was published during the year, which showed the total number of alumni now living to be 14,806. Of these 3,848 were in law; 1,432 in engineering, 1,673 in education, and 1,274 in the ministry. During the year, Leete Oliver Memorial Hall, a recitation hall for the Sheffield Scientific School, was completed, and the transfer to the university of the title to the Hillhouse property, a tract of land about 30 acres in extent, within two blocks of the present university centre, was made. Two buildings were in course of construction at the end of the year, Carnegie Swimming Hall, and Haughton Hall, a dormitory for the academic department. The total funds and

assets of the university on June 30, 1908, were \$9,640,246, and the income was \$1,163,608. Gifts received during the year, not including certain specific gifts to income, amounted to \$1,263,444. The principal items constituting these gifts were: From the Yale alumni fund, \$63,149.90; from the estate of the late Archibald Henry Blount, \$337,291.73; by bequest of the late Lura Currier, \$100,000; by bequest of the late D. Willis James, \$95,250; by bequest of the late Benjamin D. Silliman, \$50,000; by contributions to the university endowment and extension fund, \$335,665.94; by bequest of the late Charles J. Stille, \$38,032.42; by balance of the William B. Ross library fund, \$122,220.16. The university endowment and extension fund amounted on June 30, 1908, to \$2,225,999.27. The library contained 550,000 volumes. The president is Arthur T. Hadley.

YELLOW FEVER. See VITAL STATISTICS.

YOUNG, CHARLES AUGUSTUS. An American astronomer, died on Jan. 4, 1908. He was born on Dec. 15, 1834, at Hanover, N. H., a son and grandson of successive occupants of the chair of physics at Dartmouth; graduated there in 1853 and for the next two years taught Latin and Greek at Phillips Academy, Andover, meanwhile studying theology at the Seminary there. He became professor of mathematics and natural philosophy at Western Reserve in 1857, and remained there until 1862, when he joined the Eighty-fifth Regiment of Ohio Volunteers, with which he served until 1866, when he resumed his professorial work, taking the chair of natural philosophy and astronomy at Dartmouth. In 1869 he observed the solar eclipse at Burlington, Ia., and verified the gaseous composition and solar substance of the corona. With an improved solar spectroscope, which he devised, he made important observations, and in 1876 he made the first use of a grating spectroscope. In 1870, at Jerez, Spain, he discovered the "reversing layer" of the solar atmosphere, for which discovery, with others, he was awarded in 1890 the Jannsen medal of the French Academy of Sciences. In 1877 he became professor of astronomy at Princeton, where he remained until his retirement in 1905. He headed the Princeton solar eclipse expedition of 1878, and he was also in charge of the solar eclipse observations at Wadesboro, N. C., in 1900. Another of his important achievements was his experimental verification of Doppler's principle as applied to light with the result that he made an accurate measurement of the velocity of the sun's rotation. Professor Young invented an automatic spectroscope which astronomers have quite generally adopted. His publications include: *The Sun* (1882); *A General Astronomy* (1889); *Elements of Astronomy* (1890), and a *Manual of Astronomy* (1902).

YOUNG MEN'S CHRISTIAN ASSOCIATIONS. The first association was organized in London in 1844. They now exist in every continent. America, 10 countries; Europe, 24; Asia, 9; Africa, 5, Australasia, 3. Total membership, 810,892; 1,118 buildings valued at \$48,677,076; 1,370 paid general secretaries. World's committee, No. 3 Ru General Dufour, Geneva, Switzerland; R. Sarasin Warnery, chairman; Paul des Gouttes, treasurer; Charles Fermaud, Christian Philidius, general secretaries. North America: 1,939 associations; 446,032 members; 630 buildings, valued at \$39,138,411; 2,544 employed officers. Men in educational classes, 44,831; in

physical work, 187,110; in Bible classes, 88,549. By departments, 83,466 members in railroad associations; 51,999 in student associations; 9,198 in colored associations; 70,532 in boys' departments. In city associations 64,425 men in industrial occupations. Specialized work is being done for railroad men; students in college and professional, theological, preparatory and high schools; colored men in cities and colleges; reservation Indians; men and boys in country districts; enlisted men of the army and navy; industrial workers of all kinds, and immigrants. Current expenses: Local work, \$6,182,926; State and provincial work, \$418,969; internal committee—home work, \$221,843; foreign mission work, \$168,556. International employed secretaries, home field, 66; foreign mission field, 68. North American International Committee, 124 East 28th street, New York; Lucien C. Warner, chairman; F. B. Schenck, treasurer; R. C. Morse, general secretary.

YOUNG TURKS. See TURKEY; BULGARIA; BALKAN QUESTION.

YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS, NATIONAL BOARD OF. Was formed in Dec., 1906, consisting of thirty members. Headquarters are at 125 East 27th street, New York. The national association which the board represents is made up of 167 city and 5 mill village associations with a membership of 115,616 and 536 student associations with a membership of 116,529. The national board has two coördinate departments for home and foreign work. The home department has sub-committees for publications, conferences and conventions, secretarial training, city and student work, and for work in manufacturing and industrial centres. The official organ is *The Association Monthly*. Nine summer conferences with an attendance of 3,440 were held in 1908; the second biennial convention will be held in St. Paul, April, 1909. A new training school for secretaries was opened in New York city, Oct., 1908. Under the direction of the world's committee at London, 10 of whom are members of the American national board, there are 13 American secretaries engaged in foreign association work: 7 in India, 1 in Japan, 4 in China, and 1 in South America. President of the national board, Miss Grace H. Dodge.

ZANZIBAR. A British protectorate on the east coast of Africa, comprising the islands of Zanzibar (987 square miles), Pemba (596 square miles), and Lamou (56 square miles). The population, estimated at 250,000, consists mainly of negroes, 20,000 East Indians, and 10,000 Arabs; the last are the dominant race. Zanzibar, the capital, has 50,000 inhabitants. The products are chiefly cloves, copra, chillies, rubber, copal, hides, and ivory. The export of copra in 1907 was 143,163 cwts., against 157,445 cwts. in 1906; but the value of the 1907 export was the highest on record. The crop of cloves, the great staple of the islands, for the season 1907-8 was an exceptionally good one, being estimated at not less than 200,000 bales. The imports in 1907 amounted to £1,232,957; the exports, to £1,070,067. The latter included cloves, £410,119; copra, £137,633; ivory, £57,502; rice and cereals, £37,929; rubber, £16,993; skins, £14,324; copal, £12,657. The trade is mainly with East Africa, British India, Great Britain, Germany, and France. The port of Zanzibar was entered

in 1907 by 388 ships of 482,465 tons (278,354 German, and 122,740 British). A light railway of 7 miles was built by an American company. It is being extended from the town of Zanzibar to the plantations in the north of the island. The present Sultan is Seyyid Ali Bin Hamud, who succeeded his father on July 18, 1902. His authority nominally extends over the coast of the British East Africa Protectorate 10 miles inland. All public expenditures must receive the consent of the British agent and consul-general—in 1908, Basil S. Cave. There is a British garrison of 400 men.

ZELLER, EDUARD. A German theologian and historian of philosophy, died on March 19, 1908. He was born at Kleinbottwar, in Württemberg, on Jan. 22, 1814, and was educated at Tübingen and afterward at Berlin, where he was influenced by Hegel. In 1840 he became *privatdocent* at Tübingen, and here began his study of the history and basis of the Christian religion, which prompted his subsequent researches in the history of Greek philosophy. He was appointed in 1847 to the chair of theology at Berne, and in 1849 to the corresponding professorship at Marburg, but opposition to his theological views caused his transfer to the chair of philosophy in the latter university. In 1862 he became professor of philosophy at Heidelberg, and in 1872 took the corresponding chair at Berlin, where he continued his active work as a teacher until 1895, when he retired. During his early career, he was one of the founders of the *Theologische Jahrbücher*, which reflected the philosophical and historical methods of David Strauss and Christian Bauer, and the Hegelian idea of development. His principal published work, *The Philosophy of the Greeks in Its Historical Development*, was produced chiefly in the years 1844 to 1852, but was subsequently much revised and enlarged, and the latest edition was printed in 1902. It has been translated into English, and other European languages, and is considered the most important text-book on its subject. Zeller's other works include *Das Theologische System Zwinglis* (1853); the important *Die Apostelgeschichte kritisch untersucht* (1854); *Vorträge und Abhandlungen* (1865); *Staat und Kirche* (1872); *David Friedrich Strauss* (1874); *Grundriss der Geschichte der griechischen Philosophie* (1883; 8th ed., 1907); and *Friedrich der Grosse als Philosoph* (1866). In his later years he abjured the Hegelian philosophy and adopted that of Kant.

ZEPPELIN, FERDINAND, COUNT VON. A German aeronaut, who made several remarkable flights in his dirigible balloon, in 1908. He was born in Constance, Baden, on July 8, 1838, studied at the Polytechnic School in Stuttgart, and then in the military school in Ludwigsburg. He became an officer in the army in 1858, and after considerable military service, in 1890 began to study airships, and in 1900, at Friedrichshafen, on Lake Constance, began his experiments with a dirigible balloon of large size and with engines of considerable power. This type of balloon was developed by him, and he was remarkably successful in the early part of the summer of 1908, until his airship was wrecked. For a description of his airship, and aerial voyages, see the article **AERONAUTICS**.

ZINC. The production of primary spelter, a crude metallic zinc derived from ore, in the United States from domestic and foreign ores

in 1908 was reported by the United States Geological Survey at 210,424 short tons, worth at the average price about \$20,000,000, as compared to 249,860 tons in 1907, 224,770 tons in 1906, and 203,849 tons in 1905. Imports of zinc ore comprised 23,500 tons of duty-free calamine (silicate ore), valued at \$220,000, and 30,500 tons of dutiable ore (carbonate and sulphide), valued at \$383,000. These imports, of which 6,500 tons were dutiable ore from Canada, the remainder being from Mexico, show a decrease of about 50 per cent. from the quantities of the corresponding ores imported in 1907, which were 81,973 tons and 28,867 tons, respectively. The exports of zinc ore show an increase, being 26,108 tons, worth \$877,745, compared to 20,352 tons in 1907. The imports of spelter show a decrease of 50 per cent. being 881 tons, worth \$85,000, compared to 1,778 tons in 1907. The exports of spelter show a marked increase, being 2,648 tons, valued at \$238,000, as against 563 tons in 1907. The exports of zinc dross were 8,680 tons, in value \$483,000, compared to 9,593 tons in 1907. Prices maintained a uniform but very gradual ascent throughout the year. The average New York price of prime western spelter for the year was 4.73 cents per pound, the extreme range in value being from 4.32 to 5.15 cents per pound, as compared with 4.254 cents (Dec.) to 6.837 cents (March) in 1907. Zinc is also used in pigments, such as zinc oxide, leaded zinc oxide, zinc lead oxide, and lithoplane, which are prepared direct from the ore. In 1908 the output of these was estimated at 65,100 tons valued at \$5,876,040, as against 85,390 tons valued at \$7,731,100 in 1907.

ZIONISM. See **JEWS**.

ZOOLOGICAL SOCIETIES. The German Zoologische Gesellschaft held its eighteenth meeting at Stuttgart, June 9 to 11. The opening address was by Professor Zschokke on "The Conditions of Mid-European Fauna During the Ice Age." The eighth international zoological congress was scheduled to meet at Gratz during the summer of 1910 under the presidency of Professor L. V. Graff. For award at the time the following prizes were announced: The Emperor Alexander III Prize for a paper on "The Role of Mechanical Phenomena in the Transformation of Animal Forms," the Emperor Nicholas II prize for a monographic study of a group of Platyhelminthes, and the Alexander Kowalevsky prize, founded by the Zoological Society of St. Petersburg, to be awarded to a candidate selected by them. Zoologists of all countries except Austria were invited to compete for the other two, the rules forbidding competition by the natives of the country in which the congress meets. The Swiss Naturforschende Gesellschaft met Aug. 30 to Sept. 2 at Glarus. The Italian zoological and anatomical society met Sept. 1 to 4 at Bormio-Bagni. The seventy-eighth annual meeting of the British Association for the Advancement of Science was held in Dublin beginning Sept. 2 under the presidency of Francis Darwin. The address before the zoology section was by S. F. Harmer. (See **ZOOLOGY**.) The American Society of Zoologists with Professor W. M. Wheeler, president of the Eastern branch, as presiding officer, met at Baltimore, Dec. 28 to 30, in conjunction with Section F of the American Association for the Advancement of Science. Professor E. B. Wilson, as vice-president of Section F, delivered the annual address, taking for

his subject, "Recent Researches on the Determination and Heredity of Sex." (See BIOLOGY.) The Naples Association for Promoting Laboratory Research by Women announced for the fourth time a prize of \$1,000 to be awarded in 1909 for the best paper on a chemical, physical or biological subject, written by a woman.

ZOOLOGY. Zoölogical research for the year 1908 seemed not to have shown any very new developments, a great deal of research having been carried on along established lines of descriptive anatomy, embryology, and in systematic work. At the same time, a great deal was done in the newer fields of experimental embryology and cytology. The discovery of a few years ago, that the egg contains different "formative materials," which are visibly distinct, and have distinct functions in forming the embryo, was followed by the discovery that these materials could, without interfering with the regular course of development, be thrown by a centrifuge into a regular stratified arrangement. The use of the centrifuge was the most recent addition to the technique of experimental embryology, and in the United States, especially by Lillie, Morgan, Conklin and their students, was used a good deal, the purpose of the experiment being an analysis of the method of working of the formative forces at work in the production of the embryo. Wilson and others have continued their studies of the chromosomes. (See YEAR BOOK for 1907, article BIOLOGY.) Other developments of zoölogical investigation along experimental lines which have continued through the year are Regeneration and Regulation, and in the study of the reactions of animals to stimuli of various sorts, where the zoologist and the psychologist apparently meet on common ground. As president of the section of zoölogy at the meeting of the British Association for the Advancement of Science, S. F. Harmer spoke especially on problems connected with the study of the Polyzoa. As bearing on Weismann's theory that the appearance of variations is produced largely through union of two individuals in sex reproduction, he shows that these reproduce by budding, but nevertheless show very great variations. The address dealt mainly with the morphology of the avicularia and vibracula, which he regards as protective structures, especially adapted for protecting the animal against encrusting organisms, like other colonies of Polyzoa. These organs vary much in different genera, and he considers it probable, though not easy to demonstrate, that the variations follow Mendel's law. Dr. G. R. Wieland calls attention to the desirability of protecting the few remaining large quadrupeds in the ocean. While for a time the whale fisheries almost entirely ceased, the application of steam and electricity, and the invention of the shot harpoon, have made them profitable again. A large part of the catch is of the females taken while suckling their young, which leads, of course, to a rapid destruction of the race. Similarly the large turtles which come ashore along the Atlantic coast to lay their eggs are killed and the eggs collected for food. Unless this practice ceases, the animals will soon be entirely exterminated. Professors Wil-

son and Hill have, at the expense of considerable time and money, succeeded in getting embryological material of Ornithorhynchus, and have published some of their results in *Philosophical Transactions*. The animal lays its eggs in deep burrows from which it is difficult to dig them, and owing to difficulty in getting adults, and the further fact that when an adult female is caught, the eggs may not be in the desired stages, collections are slow and expensive.

Rotifers are commonly cited as possessing the ability to withstand drying for an indefinite time, coming into activity again on the addition of water. From experimental evidence, Whitney decided that this is an error, and that the rotifers die as soon as the water in which they are kept becomes foul as it will before it completely dries. He thinks the error might have arisen through mistaking the winter eggs for dried adults. Woodruff as a result of a year's study of a single culture of *Paramecium*, using media as nearly as possible like that of their normal environment, observed no tendency to conjugate, and thinks that nuclear variations indicate normal rhythms rather than senescence or degeneration. From this he concluded that conjugation among the Protozoa is not as frequent or as important as it is usually supposed to be.

Parker has discussed the probable origin of the vertebrate eye, and suggests that they arose from pigment cups such as are found along the nervous system of *Amphioxus*, probably functioning there as eyes. In the transparent *Amphioxus*, these may be functional anywhere in the body, but with development of musculature along the body they became limited to the head, and even there, owing to development of the jaw, were forced to the dorsal surface. The retina of the eye is then composed of a mass of these cups, and the inverted condition of the retina is due to the position of the cups, each with pigment on the side toward the brain.

The habit of death feigning possessed by many of the lower animals was discussed by Holmes. His general conclusion was that in most cases this is a tetanic condition of the muscles of the body, amounting to a sort of hypnosis, and that in insects at least it is not dependent on the brain. In insects and spiders it appears even after the brain is removed. *Annotates Japonicæ* reported the discovery of a fresh water medusa, *Limnocoedium*, in the Yang-tse-Kiang about 1,000 miles from its mouth.

BISON RESERVE. An area not to exceed 12,800 acres of land in the Flathead Indian reservation in Montana was set aside by President Roosevelt under authority of an act of Congress as a permanent bison range, the herd of bison to be presented by the American Bison Society. The sum of \$30,000 was appropriated for the purchase of this land, and \$40,000 for the erection of necessary buildings and fencing.

An important zoölogical text book of the year is Lillie's *Embryology of the Chick*, being the first since Balfour in 1883 to give a comprehensive first hand study of chick embryology. See ORNITHOLOGY and FISHERIES.)

ZULULAND. See NATAL.

THE END

